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MEDICAL JOURNAL.

E. S. GAILLARD, M. D., LL. D.,
EDITOR AND PROPRIETOR.

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ORIGINAL COMMUNICATIONS.

"Qui docet discit."

ART. I.—OCCLUSION OF THE SUBCLAVIAN ARTERIES, WITH ENTIRE ABSENCE OF PULSE IN BOTH UPPER EXTREMITIES—THE SEQUEL OF CONSTITUTIONAL SYPHILIS. By W. H. TRIPLETT, M. D., Washington, D. C.

Mr. President,—This patient, Eliza Potter, whom I present before the Medical Society to-night for examination by yourself and other medical gentlemen, is the subject of a remarkable pathological condition, as set forth above.

She is quite dark, and thirty-four years of age; tall, muscular, and weighs 160 pounds; has been married seventeen years, and is the mother of seven living children.

She has had five premature births, ranging from five and a half months to nearly full term. Had twins at six months; miscarried once at three months. Including the twins, she has lost six immature children

In December, 1871, she met with the last accident of this kind, having given birth to a child at five and a half months, supposed at the time to have been dead for several weeks. In the following June, 1872, she again conceived, and was delivered of a male child, living, at full term, in the following March, 1873. It is still living, but is delicate. When eight or nine months old it had a rash all over its body, which lasted for several months.

On careful inquiry into the history of this case, the following facts were elicited:

In the month of January, 1865, she was taken very sick with sore throat, pains in head, and the appearance of a thick rash over her body. During this sickness, which lasted into spring, she had a miscarriage; her ill health dated from this time; also the birth of immature children.

In answer to the question, "if she ever had any private disease?" said: "I might have had"; "people said I had, but the doctor never said anything about it to me." He salivated her.

She has no nodes, or rupial sores, or disfiguring cicatrices. But there is tenderness over the sternum on pressure, a sign of syphilization, and in damp or cold weather there is periosteal pain, particularly at night. At present her general aspect is good, with every indication of a well-sustained and active nutrition. She performs general house-work, and makes a good hand.

In a word, there is nothing to excite suspicion of the very grave arterial trouble, under which she undoubtedly labors.

Some weeks since she applied to me for pain in the left chest, and upon examination I found her upper extremities absolutely pulseless. But there was nothing alarming in her appearance; no anxious dyspnœa; no palpitation and great weakness commonly attendant in grave cardiac or aortic lesion. She walked into my office without apparent effort, and in an easy, self-possessed manner, asked me to give her a "prescription for a pain in the side." But for the extraordinary condition associated with the uneasiness in the left chest, I would have regarded the symptom as insignificant. In fact, it disappeared in a day or two.

In the latter part of June or early in July, 1872, the commencement of her last gestation having passed over only one menstrual period without a show, she awoke one morning with violent pain in the right arm; it was numb and cold from the shoulder to the tips of the fingers. The previous evening she had retired to rest feeling tired, but was perfectly well, as she had thought. She had done a big day's washing.

The pain grew intense, and did not fairly stop for several months. She lost the use of this arm for nearly a year. It was not till after the delivery of her child, the following March, that she began to use it a little. Soon after the pain ceased in the right arm, the left one began to pain her, and also became numb and cold; but she did not lose the use of it, as she had the right arm.

At the present time she has good use of both arms, and they are quite free from pain; however, when pressure is made along the right brachial she says it hurts her.

After a hard day's washing, the arms feel weak and somewhat painful, but by rubbing them with a little liniment they feel comfortable. The next morning they are all right again. As you have seen, they are well developed. I do not think they are quite as warm, perhaps, as they ought to be in the normal condition. She complains of their feeling cold. As I have said, the arms are *pulseless.*

Having made a most careful examination for the arteries at their usual sites, I searched for an abnormal distribution, with a like result. At no point whatever, in either arm, can pulsation be detected. I repeated my examination over again at different times, and am now firmly persuaded of the entire absence of pulse. On the right side, I discovered the subclavian in its second division; that is high in the neck, pulsating violently. On the left side it does not pulsate at all. The carotids are violent, and beat ninety-four times in the minute. The femoral and tibial arteries all pulsate. Medical inquiry naturally turns to the heart and the condition of the cardiac valves. I think there is faint systolic murmur at the base, heard in the direction of the aortic arch; and the second sound is a little too sharp; but there is no hypertrophy. Nor is there any muscular insufficiency. Its action is somewhat hurried, but perfectly regular, and its impulse is clearly felt against the chest. In my judgment the trouble did not spring from this source.

I would make the following interrogation points, in order that the true significance of this most interesting pathological condition may be the more clearly defined:

1. What is the nature of the occlusion?
2. Why is there absence of pulsation?

The College of Physicians and Surgeons of England recognize two sources of occlusion—viz., "pressure" and "the impaction of coägula." The latter embraces two lesions, "thrombosis" and "embolism." Thrombosis is the coägulation of blood arterial or venous, as the case may be, in the cavity of the respective vessel, more or less completely blocking up the channel, however induced or however extensive; the more extensive the more dangerous. The causes of thrombosis are sometimes very obscure, as when assigned to excessive quantity of fibrin in the blood, as in the puerperal, rheumatic and cachectic conditions. Trousseau lays stress on the cancerous cachexia.

If the central organ should happen to be weak at the time, sending the blood more slowly through the tissues, there will be imminent danger of this coägulation—of "thrombosis."

Traumatic injury will solidify or coägulate the blood. The old idea of Dupuytren, announced in 1824, and subsequently apparently confirmed by the experiments of Gendrin, that the lining membrane of the arteries is subject to acute inflammation with exudation products, as serous membranes, causing coägulation of the blood at the affected spot, is now no longer tenable; it is a myth. I admit no theory ever had a more wide-spread acceptance. Nevertheless, North German pathological histologists, by aid of microscopic power and most patient, unremitting research, have settled it in the negative. Rokitansky, Virchow, Billroth, Rindfleisch, with many others, have spoken upon this subject in most unequivocal terms. Rokitansky "does not admit of the possibility of acute inflammation of intima or lining membrane of blood vessels." "No vessels have ever been traced into it, consequently there can not be acute inflammation of this structure." Virchow says, "hitherto no experimenter who has carefully prevented the blood from streaming into the vessel has succeeded in producing effusion on its free surface." He himself tried it many times with negative results. Pathologists in France and England have not looked on indifferently, nor been idle in this department. Dr. Lee, of England, after throwing two ligatures around an artery several inches apart, opened the portion between the ligatures and carefully expressed the blood. Having done this, he introduced several pieces of lead, and then took the precaution to close up the opening he had made in the vessel by throwing a ligature around the tips of the wound. Gendrin omitted doing this in his experiments, and of course when he examined the wound several days later, "he found the vessel full of coägulated lymph." *It ran in from the injured tissues in the vicinity of the vessel.* But when Dr. Lee, who had used a more classical procedure, had occasion to inspect its results, he found the vessel *empty* when he opened it. Not even the presence of a foreign body (pieces of lead) had caused any *effusion on the free surface of the intima.* I will not multiply authorities on this subject. Suffice it to say, that leading pathologists now regard the white, lymphous deposit, once regarded as *effused* from the free surface of the lining membrane, therefore a witness of an inflammatory process having been present in that tunic, "as deposited *directly from the passing blood.*" Any irregularity of the smooth surface, any "depression," "elevation," or "roughness," will "whip" fibrin from the blood flowing over it. And as the fibrinous accretions grow in bulk, they seriously interfere with the calibre of the vessel and cause stagnation, or an eddy in the current, when coägulation is imminent. The law of normal blood is, that it shall continue in *constant motion.* Therefore, any disease that disturbs or alters the calibre of the vessel, or impairs the smoothness of the vascular plane, endangers coägulation, or "thrombosis." Hence it is that "chronic arteritis," known by the very ambiguous term of "atheroma," producing great deformity of the affected vessel, is the most prolific cause of thrombosis. All those deposits that take place in the blood vessels of chronic drunkards are chargeable to this inflammatory process.

In a healthy condition of the system, blood may pass over the rugosities for years without coägulating; but when the health is undermined from any cause, and the blood rendered more than ordinarily coägulable, there is great danger of this catastrophe. If in addition to this coägulability of the blood the heart's action be less vigorous than natural, a quite probable circumstance, a dangerous stasis of blood at the affected locality takes place. Let me say to you, that when thrombosis takes place, acute arteritis does not happen, but the whole thickness of the vessel is involved; the sequence of coägulation. The "arteritis thrombotica" of German pathologists. The chronological order is—thrombosis—arteritis. Not that a *limited* inflammatory process, more or less acute, may not take place in the substance of the walls, as happens in acute atheroma, but the morbid process essentially consists in proliferation of the cells of the intima, and separately from the impediment it may offer to the smooth passage of blood by an inequality it may occasion on the floor, or inner surface of the artery, has no influence in producing coägulation. When such growth has once formed, it may not remain stationary, but cell degeneration simulating pus may be evolved in the *substance* of the walls, *but never in the free surface of the intima.* The white cells found in the clot of blood of an inflamed artery looking like pus, therefore inferred to have been the product of the intima, *is not pus, but degenerated fibrin;* portions of the blood clot from *chemical change,* and not the product of secretion, as formerly taught.

The discoloration of the tunic is owing to *imbibition of the coloring matter of the blood before or after death.* Thus it is that these strong bulwarks of the verity of violent internal arteritis have been spirited away, at the signal of pathological histologists.

As the case stands, then, chronic arteritis, "arteritis chronica deformans" of Virchow, is the most prolific source of arterial thrombosis.

We will not consider thrombosis of the veins in this paper, as it would unduly expand it, and not contribute to the object of the monograph which would establish the nature of arterial occlusion in this woman.

The next pertinent inquiry is, what causes chronic arteritis? Alcohol, rheumatism, gout, syphilis, and mechanical strain from over-distention, are set down as the great provoking causes of the affection.

The two latter are quite recent additions to arterial pathology, and mainly due to English investigation.

Dr. E. Lanceraux published a book, 1864, entitled "A Treatise on Syphilis," in which he shows syphilitic affection of the muscular walls of the heart and the blood vessels of the brain. But very little is known yet of the full extent or frequency of syphilitic disease of the vascular tunics.

What I offer you is from the most recent publications and current medical literature. In 1859 Virchow pointed out this complication of syphilis.

There is no longer doubt that constitutional syphilis does most seriously affect the organs of circulation.

Dr. Aitken says, that during the four years he was at Fort Pitt and at Netley Hospitals for invalids, he dissected twenty-six bodies of soldiers, in each of which there was a distinct history of syphilis associated with unmistakable syphilitic lesions; and of these twenty-six cases, *seventeen* had the coats of the thoracic aorta impaired by characteristic changes; changes which are uncommon at an early period of life, and which he had every reason to believe were due to syphilis—*syphilitic arteritis*. The changes are obvious, from cicatricial-like loss of substance of the inner coat, small, local dilatation of the artery, and in several cases aneurismal expansions as large as an orange, which proved fatal.

Drs. Hughlings Jackson and Maxon have published cases of syphilitic disease of the arteries in the "London Lancet." In the September number for 1869, Dr. Maxon published the death of a patient, thirty-one years of age, from apoplectic symptoms, in which the post-mortem revealed a gummy tumor in the dura mater under the frontal bone, and disease of several of the cerebral vessels.

The basilar artery was double its normal size, of milky-white appearance. On opening the vessel, its calibre was discovered to be not one-half the natural size.

Professor Janeway, one of the curators of Bellevue Hospital, New York, says that a large proportion of the cases of valvular disease previous to middle life and unconnected with rheumatism, is due to syphilitic disease.

Assistant Surgeon Alfred Lewer reported a thoracic aneurism in a soldier from the same cause.

Dr. Peter Davidson, of the Royal Navy, reports the autopsies of twenty-eight soldiers who had been syphilitic, and seventeen out of that number had atheroma. He meant to declare, in other words, that seventeen had syphilitic arteritis. But in regard to these English discoveries a circumstance should not be overlooked. The citizens, young and old, of that nation, are peculiarly obnoxious to chronic arteritis. Why it is so I can not tell, but, nevertheless, it is an admitted fact, their blood vessels are prone to disease.

The British soldier is a frequent victim. And this circumstance has been adduced to sustain another theory; that arteritis is a frequent sequence of great strain upon the vessels. As much as seventy-five per cent. of endo-arteritis occurs in the ascending and transverse arch, or just where the impact of blood from the left ventricle causes the greatest strain.

Dr. Lawson says the disease is eleven times more frequent in the soldier than the civilian.

And Dr. Parkes has undertaken to show greater prevalence of the disease in certain branches of the service in which the duties are more arduous; where the soldier carries a heavy knapsack, and is encumbered by ill-fitting clothing. They constrict the neck and chest and impede circulation. Blood accumulates in the arch, and under the stimulus of the irritation, the contraction of the ventricle is augmented. The pernicious effects of this over-distension upon the heart and aorta have been so forcibly demonstrated by English surgeons, that important changes in the army regulations of that Government have recently been effected.

It appears to me that still another view could be presented of this subject, which would reconcile the apparent discrepancy among British observers as to the cause of the great prevalence of arterial disease among them.

Syphilis, among its many other pernicious properties, possesses the power to intensify a constitutional tendency to local inflammation. It is unquestionably a potential cause in the development of arteritis in the English service. In some inexplicable manner it engrafts or fuses its personality with the vital forces, and disarranges the organic processes concerned in nutrition of the vessels.

I think it also clearly demonstrated that the forcible distension of arteries, as in great muscular effort, especially when often repeated and much prolonged, also greatly tends to the development of arterial inflammation.

To sum them up in the order of their relative importance, would be as follows:

1. A constitutional inclination or tendency to arteritis.

2. The presence in the blood of syphilitic poison are the predisposing causes.

3. Mechanical injury from some tension of the vessels is the exciting cause.

It seems to me this is the most natural and easy solution of this seemingly difficult question.

In the history of the pathological problem announced in this woman, two of these factors are in striking prominence.

There is unquestionable evidence of severe syphilization. You will remember this woman's vocation is to wash clothes. This is very hard work, and continued for many consecutive hours. The arms especially are never idle, and their musculation is violent. They consume a large amount of blood, and there must be a corresponding dilatation of the subclavians to make room for the swollen tide. They are kept greatly dilated from morning till night. Nature has made certain provision for increasing its circulation, and effects it through the agency of the vaso-motor nerves; the calibre of the vessels expands to a certain point functionally; it is dangerous to transcend it.

This woman's vitality was seriously impaired by syphilis, and the distension of the subclavian arteries for many consecutive hours peculiarly disposed them to this species of disease. Syphilitic degeneration of the vascular tunics, with its attendant evils, diminution of the calibre of the affected arteries and entire occlusion, was the result.

EMBOLISM.

The question of emboli I have not as yet considered. I am sorry it can not be altogether eliminated as a possible cause of the double occlusion. But there is a growing conviction in my mind that this is not the source of the occlusion; moreover, cardiac emboli of such magnitude as would not admit of a passage through the subclavians, with all the force of a strong ventricular contraction to urge them onward, would not be likely to take such erratic course. There is no resemblance in the points of origin of the two subclavians, for on the right side it springs from the arteria innominata, and on the left side directly from the arch of the aorta, and external to the carotid of that side. On hydrostatic principles, one of these emboli, at least, ought to have drifted in the main channel of the current, which would have sent it into the right or left carotid, being on a more direct line with the ventricle.

Emboli are more apt to affect the inferior extremities, judging from reported cases; and since the larger volume of blood passes the arterial apertures situate along the roof of the thoracic arch, the drifting emboli would be hurried along with it to a more distant region.

When cardiac emboli of magnitude drift in the circulation, one disaster after another happens (if cerebral trouble do not suddenly cut him off) from arrested circulation in the part or limb, as the case may be, suspending its functions, and in many cases inducing gangrene. Presently he is cut off suddenly. Sooner or later, and at best at no distant day, cardiac emboli produce a fatal termination. And there are but isolated exceptions to this general rule, so far as my reading extends.

One of those remarkable exceptions is related by Dr. Edward Crisp in a book published in London, 1844, entitled "Diseases of the Blood-vessels." As it is a most instructive case, I will give a brief synopsis of it.

"*London, January*1, 1835.—Case I—Mary C., aged twenty-two, has occlusion of the arteries, with absence of pulsation in all of the limbs. First the axillary, and then the femorals became affected. A feeble pulsation reäppeared in the left arm, but scarcely perceptible. In the right femoral, pulsation ceased about two inches below Poupart's ligament; in the left about one and a half inches below the ligament. Both feet suffered from sphacelus, the right more than the left. At length, after months' of suffering and the loss of the greater portion of the foot, the limb was amputated below the knee. All the larger arteries were slit up, but no trace of inflammation could be found. (Crisp strongly advocated the existence of acute exudative arteritis). They appeared smaller than natural. The stump remained open for ten months, when it finally cicatrized. It is always cold; the other foot and limb are also cold. They are often affected with chilblain, and become œdematous. The arms and hands are below the natural temperature; the right arm is frequently numb, and she has less muscular power in it than in the left. There is feeble pulsation in the left. The sense of touch is perfect. If the skin is slightly bruised it becomes black. The sounds of the heart are natural. (At the time of the attack, there was loud cardiac murmur). In 1845, ten years after the attack, the patient was still alive, and in better health than she had been in fifteen years before, and of robust appearance. The limbs are still very cold in winter, especially the right arm, which is affected with pain and tingling when placed in cold water. Feeble pulsation in left brachial and ulnar arteries. On placing the finger on right radial there appears sometimes to be a slight vibratory motion, as if a small quantity of blood passed through the artery. No pulsation can be felt in right brachial or axillary, or in right popliteal or tarsal arteries. The femorals must have pulsated, or the fact would have been noticed."

This case is instructive in showing how cardiac disease may give rise to emboli and then pass away, or become obscure; whilst the results of the infarction remain as 'a long after-effect, disabling or blighting the limb. It is also instructive in showing the greater power of the upper extremity over the lower in resisting mortification, owing to a superior anastomotic circulation. It becomes cold, numb, powerless, pulseless, dreadfully painful, but it is slow to mortify.

It can not be doubted in arrested circulation of the limb that considerable blood is furnished by the opposite side. That there is much freer anastomosis between corresponding branches of the collateral circulation than would appear on coarse dissection.

One reason why emboli are prone to be followed by gangrene, is the circumstance, that when infarction is effected, the plug receives constant accretions from the blood both on the cardiac and distal side; thus extending up and down the limb, thereby seriously interrupting the anastomotic circulation and inducing gangrene. This fresh coägulation of blood around the embolism is called "secondary thrombosis." It is a formidable disease. Much might be said of smaller emboli that frequently interfere with the due circulation in the nerve-centres. Very many diseases, from the want of more exact information, that are ascribed to the functional derangement of this or that organ, will, I predict, in time find their proper elucidation in the infarction of some important artery to an appellate nerve-centre, or in the organ itself. Keeping the brain in sight, I would charge sudden loss of mental attributes; loss of memory; diminished power of thought; aphasia; a sudden change of *disposition;* dementia; insanity; sudden loss of vision, to be due in a large number of cases to infarction of a cerebral artery. In all these manifestations of disease the heart is always a very proper organ to be examined, and should never be overlooked.

I would recall to mind a symptom in our patient of a most suggestive character. I allude to somnolency; there was great somnolency for several months in the outset of her attack. Modern investigation prove this to be a result of anæmia of the brain. But especially in our case this could not have happened, since the blood, in great measure, diverted from the upper extremities would unduly distend the carotids and vertebral arteries, unless forsooth occlusion had also happened to an internal carotid, or large arterial branch at the base of the brain.

Dr. Maxen's case is a pointed enunciation, that some such event might have happened in this case; to be even highly probable.

In time compensation was made by other vascular supplies. The cerebral integrity for the time imperiled was once more assured, when the woman advanced out of her stupor.

In regard to the modus operandi of syphilitic disease in effecting occlusion, I believe something like the following takes place:

Admitting the previous existence of an irritation, or nerve-lesion in the part affected, inviting increase of blood; its sequences hypernutrition, hyperplasia, cell-proliferation result. This, you observe, is different language, really meaning another state of things than what was formerly sought to be represented by such terms as "effusion," "exudation," "infiltration." This hyperplasia of connective tissue element and cell proliferation in effect diminishes the calibre or lumen of the artery in proportion to the growth, since it extends as well in direction of the central axis of the vessel as towards its superfices. Proceeding on this plane of development, it is evident entire obliteration would be accomplished after several reduplications of the normal walls; but before the process would have advanced to this extreme degree, it is highly probable the increasing interruption offered to the passing blood would cause thrombosis, and the work of occlusion be suddenly finished.

In proportion to the diminution of the calibre of the blood conduit, will be the interruption of the blood supply, till compensation is made by the collateral circulation. Very frequently this is never up to the normal amount, and though the limb may not suffer mortification, yet it remains permanently crippled in its functions and in its usefulness. For active and sustained musculation, it is absolutely essential to have rapid and abundant arterialization of the tissues of the respective limb. I wish to lay stress on this circumstance, as I desire to make use of it to prove abundant blood supply to the arms of this woman, notwithstanding the absence of pulsation. There is well-sustained nutrition, and she uses them from morning till night in active labor. This is the most conclusive circumstantial evidence of abundant blood supply to the limbs.

I venture the prediction, if the affected arteries could be examined, they would be found very much thickened and enlarged, but with greatly reduced calibre; perhaps with the calibre entirely obliterated in places, the effect of the inward compression; but it is also highly probable the diminished canal is occupied by coägulated blood. So that the condition is a compound one, which is equally true in the thrombosis of chronic arteritis from other causes. The significant fact in this case is, that syphilis is at the bottom of this woman's trouble. If this be true, it is highly probable the disease is progressive, and in turn more of these arteries will take on diseased action, or extend the limits of the affected portions. In this way the subclavian, axillary and brachial in turn may become affected, but it would imperil the safety of the limbs and totally destroy their usefulness. There is reason for believing the limb might be saved under these disastrous circumstances, but its usefulness would be lost, from the very diminished blood supply being scarcely more than an appendage to the body. When we take into consideration that both the subclavians are diseased, we can not suppress the liveliest apprehension of the result of such extension. In fact I have expressed the opinion, that such extensive occlusion of the main canal of a limb would produce mortification; but an eminent physician of Georgetown, D. C., differed with me in this opinion, and cited me to the Wilkes' case, or rather the Savory case, reported in the Pathological Society of London, 1856, and published in the "Transactions" of that Society. It is a remarkable case in many respects.

A young woman, twenty-three years of age, twenty years ago, died in a London hospital after long lingering illness. The immediate cause of death was an extensive slough of the left hemisphere, which in turn had penetrated the scalp, skull, meninges, and finally the brain itself. The external portions of this vast slough, which had existed for months, had left the affected portion of skull bare, loose, and resting on the brain. There was no pulsation in the left carotid, and very indistinct in the right; and but faintly felt in one of the femorals; with these exceptions no pulsation could be discovered anywhere. She had been an invalid since five years of age, and had been the round of the hospitals.

Dr. Wilkes says her mother stated no pulse had been felt in the arms for five years. The post-mortem revealed a singular state of things. Both subclavian arteries about an inch from their origin were reduced to one-fourth or one-fifth their norsize, and their calibre occupied by a firm, whitish fibrinous plug, having strong adhesions at different points to the inner wall of the vessel. This diminution of the vessel and fibrinous plug extended all the way down the arm through the axillary, brachial, ulnar and radial arteries of both sides. The left common carotid was similarly affected, whilst the right common carotid, though pervious, was much diminished in size. The femoral vessels were pervious, but small. For more than a year preceding her death she kept the recumbent posture. When she lifted her head off the pillow, the anæmia was so great she at once became blind. Lying down, she could again see very well. She was reduced in flesh, but the fact is commented on, that her arms were no thinner than her lower extremities. But I notice a circumstance of unusual interest in the history of this case—viz., that on making the least effort to use either arm, the limb would shake violently and fall useless to her side. A portion of this phenomenon was very probably of cephalic origin; but I think it mainly due to paucity of blood in the member, as no such circumstance is mentioned as having taken place in the inferior extremities during progression and before her confinement to bed. I think this conclusive evidence of its local nature. Dr. Wilkes can not say this case was not congenital, consequently its practical application to our case will not do. A distinguished English surgeon, Mr. Timothy Homes, who very probably was cognizant of all the known facts in this case, says "it was very probably congenital."

The facts are opposed to the surgical history of arterial lesions, and the lesions deduced from them.

I do not think any surgeon would admit the great arterial canal in the upper or lower extremity of an adult can be *obliterated in all its extent* and the limb altogether escape gangrene. The Wilkes' case is an anomaly, and too indefinite for the purpose of illustration. If it occurred in utero, or early life, its practical use would be lost, for it is a well-known fact, in the very early periods of life there is a degree of capillary activity and power of accommodation or compensation, not found in the adult, or at any other period of life. But admitting all they ask for in this case, admitting a limb may survive universal occlusion of its central arterial canal, the fact still remains, *the limbs were useless.*

Our patient has good use of both arms; consequently the main artery in either arm must be pervious beyond the occluded point in the subclavian. If the disease extends and gangrene do not happen to her, a degree of atrophy with loss of power can safely be predicted.

My theory of the case is, that the collateral circulation was being developed, as the narrowing took place, pari-passu. The history of the case shows this was better accomplished in the left arm than in the right, as she suffered less in this arm, and never lost the use of it. The right was crippled for a long time, and the seat of great pain.

I will now hastily conclude the case by briefly recurring to the other and last cause of arterial occlusion, "pressure," from an intra-thoracic tumor.

Not to detain you with the reasons for such opinion, I will simply state the entire absence of this source of occlusion in our patient, after most pains-taking examination of the thoracic viscera.

ABSENCE OF PULSATION.

The only suggestions I can offer in any way explanatory of this interesting phenomenon, is referable to the capillary circulation. The intervention of this set of minute vessels between the collateral branches of the newly established circulation, interrupts the blood-wave from the ventricular contraction; so that the blood reäppears on the distal side of the obstruction, not in jets, not per saltum, but as a constant stream. As the capillary vessels dilate under the pressure of the blood, the pulse reäppears; at first faintly, but growing stronger and stronger at the extremity of the limb. At last it may become as strong as ever, but I believe this exceptional. It very seldom does this.

Our patient is entirely pulseless, though nearly two years have passed since the accident. I think this very singular indeed. Perhaps it would be well to bear in mind the very circuitous route of the blood supply in this case. The thyroid axis and internal mammary of the right subclavian are believed to be the main source of supply to both upper extremities. Of course considerable blood is also furnished by the carotids in the lateral cervical regions. And very probably the femorals also furnish no little amount through the medium of the epigastric arteries. Thus it is the blood has a most circuitous route and a numerous system of capillaries to pass before it arrives in the vessel beyond the point of obstruction; nevertheless, blood must pass rapidly through these channels, for the arms are well nourished, and there is active musculation.

I am not altogether satisfied with this explanation. One circumstance I do not forget; after blood passes through capillaries it is venous, and unfit for nutrition of the tissues. This character of blood could hardly preserve the limbs in their present condition.

May there not be some fault in the vital condition of the vessels themseves, by which the circular fibres lose their contractility? No lesion of a nerve-centre by which this could done? C. J. Eberth, Lehmann, Stricker, and other German histologists, claim a fine network of nerves on the muscular substance of the middle coat of the arteries. The degree of nerve development is an index of amount of functional activity. There are abundant facts to show they do contract. Chemicals, even cold air, will make them contract energetically; sometimes a large artery will contract in its entirety to one-fourth of its normal size, becoming hard and rigid, as a cord. The Wilkes case, already cited, is proof of this fact. But there are others of less questionable nature. A case in point is the one read from Crisp.

An artery so contracted is too rigid to pulsate. To pulsate, it is absolutely essential for it to expand. May there not be a condition similar to this in the affected arteries of our patient?

W. H. TRIPLETT.

Washington, March 4, 1874.

April 29, 1874.

The presentation of the patient, and the reading of the paper, has been the occasion of animated discussion, extending over several weeks. The points of greatest interest related to the existence or non-existence of extensive primary arteritis leading to exudation on the surface of the intima, and coägulation of the blood.

The writer held the more modern view, that coägulation was primary to arteritis, and is a sequence of this accident.

The view advocated by one of the members, W. W. Johnston, that an inflammation could take place in the intima though destitute of blood vessels, by "cell-growth" and "cell-metamorphosis," I believe to be correct. O. Weber, recently deceased, announces in his work just issuing from German publishers, and untranslated, "cell-change is the first visible phenomenon of inflammatory change, and the vascular disturbance of hyperæmia a coarser *secondary result.*" "Inflammation is disturbed nutrition announced by afflux of nutritive material in discoloration, hyperplasia and retrograde metamorphosis. At the same time a growth and a retrogression." An hypertrophy and an atrophy; a growth of new formation and an atrophy of the old. I think I understand all this and believe in it. And the fact will be readily apprehended, that the amount of tissue change effected in a given time will be in proportion to the response of the capillaries, or the amount of resulting hyperæmia. If there be but few or no capillaries adjacent to this inflammatory invasion to bring "afflux of nutritive material," the cell-metamorphosis and tissue-growth must be proportionately slow, and tarry for capillary development. It must wait upon the construction of these minute blood canals for *quick transportation* of food for the necessary supply of *rapid* cell-growth. This fact being duly considered, a recurrence to the construction of the arterial wall will show the intima very far removed from the system of capillaries disposed in the tissues of the adventitia or outer coat, since the whole thickness of the firm, elastic middle coat is interposed. This miniature Chinese wall stops the rapid advance of those very active processes in acute inflammation, which I grant may have *inception* in the inner coat, as evidenced by cell change and cloudy discoloration. These spots do not occur in the intima; but it will also be admitted, *free exudation* can not and does not take place on the *distal side or free surface of this membrane,* by virtue of the fact, the essential capillary construction for rapid transmission of so large an amount of nutritive material does not exist. No capillaries have ever been traced into these affected spots. Therefore it is, I hold, the views on arteritis advanced in this paper are in no wise invalidated.

Pending the discussion, the following letters were received from medical gentlemen who had formerly treated the patient, and who had been written to in relation to the case, confirming the syphilitic feature advanced in this paper:

BALTIMORE, MD., March 18, 1874.

Dr. W. H. Triplett:

Dear Sir,—I received this A. M. yours of March 17th. I remember perfectly well this woman whose history you are desirous of learning. I prescribed for her some three or four times in February '65; she had at that time syphilis. I remember treating the man who called himself her husband (who was a sailor) for syphilis, and afterwards Eliza. I never attended her in any miscarriage. At the time I treated her she was *not* pulseless, as before stated. Yours truly,

J. C. BIRCH.

The Doctor had been written to once before, but wished for some more particular description by which he could identify the patient.

RIVER SPRINGS, MD., March 23, 1874.

My Dear Doctor:

* * * * * * * *

Elizabeth Butler (Potter), was at one time the most powerful of all of her sex, and as fine a woman as I ever saw. In or about the year 1868 I attended her for syphilis, and it was supposed at the time to have been caught from a woman, a relative, with whom she had been sleeping, but who had concealed her condition. Eliza was confined whilst under treatment, but the child died of trismus. I cured the other before she was confined, and all went on well. Eliza had as good a pulse at that time as any one, but from time to time I had noticed her pulse being more and more indistinct in all the many little spells she has had since. And I remember distinctly that in the last illness in which I attended her, that when all her symptoms had materially improved, I was still doubting her final recovery, on account of the pulse being nearly imperceptible. She recovered, contrary to my prediction. She has had several abortions since. * * * * * * * * *

Respectfully yours, etc.,
R. P. BLACKISTONE, M. D.

N. B.—I omitted to mention the subject was presented before the Medical Society of the District of Columbia, and underwent most careful examination by a committee to discover if, perchance, anything had been overlooked, or an error in diagnosis been committed, with a negative result. Many gentlemen thought they had detected pulse at the wrist, but fell into error by recording the pulsations from the ends of their own fingers. It is astonishing how readily one will fall into this mistake. One very sanguine gentleman asserted that he "*could demonstrate* the woman had pulsated at the right wrist," and being timed by a watch, counted 90 pulsations in the minute; but when a finger was placed on a carotid artery of the woman, it was found running at 110 beats per minute. The doctor's own pulse was 90. I was certain of the correctness of my conclusions before presenting her.

ART. II.—FIBROID TUMOR OF THE UTERUS—EMBEDDED IN THE ANTERIOR WALL—SUCCESSFULLY REMOVED. By H. P. C. WILSON, M. D., Baltimore, Md.

The subject of fibroid tumors of the uterus is now occupying a large share of the thoughts of those engaged in treating the diseases peculiar to women. The diagnosis of these tumors has long been ahead of the therapeutics. With tents and chloroform their exact position could generally be accurately determined, but this point settled, there was, in former days, but feeble hope of their removal, either by physician. or surgeon, and the patient was abandoned to palliations and her fate. Both in this country and in Europe, surgery is now beginning to accomplish for them that in which medicine has so signally failed.

We now find in the journals frequent mention of the removal of intra-uterine and intra-mural fibroids. Of the surgery of extra-uterine fibroids we have still much to learn; and yet from what is now being done with fibroid tumors within the uterus and within its walls, we feel sure the day is not far distant when the treatment of extra-uterine fibroids will meet with equal success. In this country the names of Atlee, Thomas, and Sims, are a tower of strength on this subject, and to the latter especially am I indebted for many valuable hints in the successful management of the following case:

Mrs. S. B., aged forty-seven; widow; the mother of six children; had excellent health up to her last confinement (eleven years ago). Was in convulsions during that labor, and could give no account of her delivery, except that she is certain no instruments were used. Since then, has had excessive metrorrhagia; recurring some months two or three times, other months only once, but always much more than the natural quantity. Never had a miscarriage.

Five years ago commenced having uterine pains; at first slight, but steadily increasing in intensity from month to month, and year to year, until the constant pain and hæmorrhage had well near exhausted all her strength. She was brought to me by Dr. Todd, of Salisbury, Md., January 17, 1874. He had managed her most skillfully in his effort to allay pain and arrest hæmorrhage, the two most pressing symptoms.

I examined her by bi-palpation, and then with speculum and probe, and diagnosed a fibroid tumor in the anterior wall of the uterus. The examination, although very gentle, produced much hæmorrhage. After cleansing the parts of blood, the uterus was thoroughly mopped out with Churchill's Caustic Iodine, and the vagina tamponed with raw cotton. This treatment for several days completely stopped all hæmorrhage, with no recurrence up to the day of operation. On several occasions pieces of cotton, on an applicator, were dipped into the iodine, passed into the cavity of the uterus, and allowed to remain there till expelled in a day or two by uterine contractions.

With the stoppage of the hæmorrhage, the uterine pains increased. They recurred regularly every afternoon, and sometimes so terrifically as to require two or three grains of morphia hypodermically before they could be quieted. She would then fall asleep and remain stupid until the effects wore off, about the the middle of the following day, when they returned, to be treated in the same way. These pains simulated labor-pains most strikingly; sometimes the twisting, grinding pains; at other times, the bearing-down, expulsive pains. Owing to their coming on daily at a given hour, and her residence in a malarious district, large doses of quinine were given, with morphia, by the mouth; but without any effect in arresting their severity or periodicity. They continued daily with little abatement, except by anodynes, from the hour she came under my care till the hour of operation.

The functions of the bladder were greatly interfered with by the tumor pressing upon it, so that at times the use of the catheter was required. It was with great difficulty that we got her to take any food. Beef-tea, milk, egg-nog, etc., were given ad nauseam, and although she was losing no blood, yet under her terrible pains she was losing strength, and her nervous system becoming demoralized.

On January 28th I introduced a sponge-tent into the cervix uteri; the next day I removed it; passed my left hand into the vagina, and the index finger into the cavity of the uterus, whilst my right hand was placed externally over the body of the uterus. Thus by bi-palpation, through thin abdominal walls, I diagnosed accurately a fibroid tumor embedded in the anterior wall of the uterus, from fundus to cervix. The cavity of the uterus measured about six inches.

On February 4th I introduced two sponge-tents (one by the side of the other); removed them next day, and passed my left hand into the vagina, and the index finger into the uterus, and verified my previous diagnosis. No change in the tumor since the previous examination. I then passed a small, razor-shaped bistoury into the uterus, and cut into the tumor with the intention of splitting the capsule, overcoming its resistance, and allowing the uterine contractions to force the tumor more into the cavity of the uterus, through the incision made. I am satisfied I did not cut deep enough to wholly divide the capsule, but only sufficiently so to materially weaken its power of resistance. I did not wholly overcome a nervous dread of cutting into a fibroid tumor. My hand refused fully to do what my judgment dictated. I had never attempted such a thing before, and never saw any one else attempt it, and hence I failed to derive all the good, I am sure, that would have followed a free incision through the capsule into the tumor. With a Sims speculum, dressing-forceps, tenaculum, applicator, plenty of raw cotton, and persulphate of iron, any hæmorrhage within the uterus and about the cervix is under perfect control; and this fact was not forcibly enough remembered at the moment of cutting.

I went deep enough, however, to cause profuse bleeding. Cotton, wrapped around an applicator and previously soaked in a solution of persulphate of iron, was immediately thrust into the uterine cavity and allowed to remain there; the cervical canal was packed with cotton soaked in the same solution, and the vagina tamponed with flat pieces of damp cotton. She did not lose one drop of blood after this dressing, as was clearly seen upon removing the tampon on the second day. The labor-pains continued daily, as before described.

On February 26th I made another per vaginam examination. The os uteri was dilated about half an inch in diameter; the index finger passed through it, discovered the tumor projecting more from the uterine wall into its cavity than at the last examination, and presenting more directly over the os; but nowhere could it discover the line of previous incision, and nowhere was there any indication of the tumor emerging through the capsule. The circumference of the os uteri was thickened, hard and rigid; and with the view of overcoming this more effectually than sponge-tents had been able to do, and gaining a freer entrance to the uterine cavity, I divided the cervix bi-laterally and posteriorly up to the vaginal junction, while the patient was under chloroform administered by Dr. Griffith. Hæmorrhage was very profuse. I made firm pressure into the cut surfaces for several moments with a piece of sponge, and immediately on removing it, packed tightly the canal with balls of cotton soaked in a solution of persulphate of iron, and then tightly tamponed the vagina. No bleeding followed. Dressings removed on the third day. The cut surfaces were kept open by pressing the finger into them from time to time.

On March 17th, at 4 P. M., I introduced four sponge-tents into the os uteri, and a ball of cotton soaked in glycerin into the vagina. I ordered one-sixth of a grain of morphia and two grains of quinine every two hours till asleep. After three doses she had a pretty good night. Not more pain with the tents than without.

On March 18th, at 1 P. M., having prepared everything for an operation; the patient on a table, in the dorsal position; the thighs flexed on the body, the legs on the thighs, and the feet resting on the table; Dr. Griffith giving chloroform, and Dr. Faucet with both hands pressing the uterus well down into the cavity of the pelvis, I proceeded to remove the tents. I then passed my whole left hand into the vagina, and the index finger its whole length into the uterus. My finger-nail was long and sharp, and my intention was to scratch and tear through the capsule, and then attempt to enucleate, hoping by this method to avoid all bleeding in a patient already greatly exhausted by excessive and long-continued pain and hæmorrhage. My efforts at tearing, although made with much pertinacity for several minutes, were wholly unavailing, so dense and resisting was the capsule enveloping the tumor. I next passed a narrow, short-bladed bistoury flat along my hand up to the end of my index finger, in the uterus. The cutting edge was turned against the tumor, and plunged through the capsule into it (being guided by the finger as to the extent of depth of incision). As the knife was withdrawn the end of the finger was thrust into the cut, and, after some little manipulation, the finger found an entrance into the cellular tissue between the capsule and tumor, and proceeded to tear right and left, back and front, till it had swept around the tumor as far up as it could reach, and separated it from the capsule, as we would an orange from the inside of its peel. There was free hæmorrhage immediately following the incision, but the finger thrust into the cut promptly controlled it, and from the moment I commenced to enucleate, the bleeding was very little. The capsule was so dense I could not tear it beyond the incision which had been made, and as the opening was much too small to let the tumor through, I passed the bistoury again into the uterus and enlarged the opening, by splitting it back and front. With Dr. Faucet making firm pressure downward, I attempted repeatedly to reach the top of the tumor and enucleate that portion, but failed. The capsular opening and os uteri, in spite of my efforts by cutting and dilatation, were not sufficiently open to allow me to pull the tumor through, even if it were free; and the uterine contractions had become so violent since I commenced enucleating, as to cramp the fingers of one hand after the other so that I could use them no longer. It was remarkable to see how these contractions increased in strength and frequency, as we progressed in separating tumor from capsule, and it was evident that the uterus would thus speedily expel the fibroid, so nearly set free. I therefore ceased further operations, placed a ball of cotton, soaked in glycerin, into the vagina to soothe it after such severe manipulation; put the patient to bed, and ordered one-sixth of a grain of morphia and two grains of quinine every two hours, with plenty of milk and lime water. Saw her again at 8 P. M.; labor-pains again recurring regularly and with much strength, having continued since I left her. Losing a little blood, but I did not interfere. Tumor presenting at the os uteri. Ordered the quinine and morphia to be continued every three or four hours, hoping to modify pains and procure some sleep before the operation.

March 19th, saw patient at 8 A. M.; pains had continued all night, with little intermission, and she was in hard labor this morning. Tumor protruding through the os. Left her, to return at 3 P. M., when I expected to find it well down in the vagina. At the appointed hour the tumor was found as expected. She was lifted on the table in the dorsal position; Dr. Griffith gave chloroform to complete relaxation. I passed my left hand behind the tumor into the vagina, and the index finger through the os into the uterus; I seized the lower portion of the tumor with strong forceps; pulled it down to the osteum vaginæ with my right hand, and enucleated the upper portion with the index finger of my left hand, as I was unable to do yesterday. It was thus brought away in a few minutes.

The last portion of the tumor separated was the apex, which was attached to its capsule by a round, fibrous root or pedicle, which only gave way after firm pulling of the tumor and extra tearing with the enucleating finger; and no doubt if the tumor had been able to escape through its dense, unyielding capsule from its place of burial in the anterior uterine wall, we would have had a pedunculated fibroid tumor in the cavity of the uterus. In other words, a fibroid and polypus. The uterus had been doing its best for months, by its strong contractions, to accomplish this end, but without success. The tumor weighed fifteen ounces; was four and a half inches in its long diameter and three and three-quarter inches in its short.

After removing the tumor the vagina was well cleansed. The cavity of the uterus was thoroughly mopped out with liquor ferri persulphatis and water (one part to two), and a ball of cotton, soaked in the same liquid, placed in the os uteri. These dressings were used more as an antiseptic than hæmostatic, for there was very little loss of blood to-day. The patient, when put to bed, was given one-sixth of a grain of morphia and two grains of quinine every two hours till asleep.

March 20th, saw her at 8 A. M.; took two doses of anodyne and slept soundly; says it is the first night she has passed without pain for years; enjoyed a breakfast of one soft-boiled egg, coffee and toast. Pulse 84 and good; has had no pain since the removal of the tumor. The ball of cotton was removed, and the uterus syringed out with a pint of warm water and carbolic acid.

March 27th (the eighth day since the operation), has had no unpleasant symptom. Pulse ranged from 84 to 94, rarely as high as the latter; some soreness over the hypogastric region. The uterus was washed out twice daily by throwing a stream of warm water and carbolic acid through a No. 12 gum catheter passed up to the fundus uteri.

April 2d (two weeks to-day since the operation), patient sitting up; no unpleasant symptom since last report. Uterus washed out once daily for the last week, as above described. The purulent discharge, which was abundant at first, very little now. Appetite ravenous; bowels regular.

April 9th, nothing to note in the past week; the vagina only has been washed out since last report; bowels too free from overeating; sleeps well without anodynes; will return home in ten or twelve days. I consider her out of all danger.

ART. III.—NEW METHOD OF TREATING ENURESIS. By J. SHELTON HILL, M. D., Baltimore, Md.

The means which I have of late chiefly relied upon in the treatment of this trouble, and which has proved successful in five or six very obstinate cases which had resisted all other measures, is, so far as I am aware, altogether new, and appears to be worthy of further investigation. The first case of nocturnal incontinence of urine that was treated by the following method, had been suffering from inability to hold his water at night for four years; he was a sailor, nineteen years of age, rather below the medium size; but in all respects, excepting his urinary organs, perfectly healthy.

His history was as follows: While at sea he was often exposed. On one occasion he was shipwrecked, and had to remain all night in his wet clothing; when he had an opportunity of changing them, they were frozen. He contracted a severe cold, which resulted in pneumonia, from which he recovered after a severe illness. After his recovery, he noticed he could not hold his water, and that every morning his bedclothing was wet. This continued until it became very annoying. He applied to a physician, but continued to grow worse, until he became a nuisance even to himself. When he came under my observation I examined him first with a catheter; no obstacle was encountered; his prostate was examined and found to be normal. On introducing the instrument, the sphincter of his bladder appeared very loose and flabby, and the catheter, when introduced, seemed to be unusually movable. The patient was then put on belladonna in free doses; this medicine was used for ten days, with no appreciable change. Next bromide of potassium and belladonna were given in combination for a week, without effect; nux vomica was tried, but failed; tincture of cantharides was resorted to, but proved of no avail; sulph. strychnia was given by the stomach in doses of the thirtieth of a grain three times a day; iron and quinine were administered in tonic doses, and electricity was made use of; but they all failed to produce the desired effect. Having failed in so many attempts, I was almost in despair of giving the patient relief, when a happy thought occurred—viz., that perhaps strychnia given hypodermically might succeed; and knowing its supposed physiological effect, I resolved to try it. Upon reflection, I conceived an idea concerning the action of cantharides, and remembering its stimulating effect upon the genito-urinary organs, and particularly upon the sphincter, I concluded that if the strychnia and cantharides could be used together, their combined influence might cure the patient. Acting upon this supposition, I ordered a fly-blister, five inches square, to be placed over the pubic and hypogastric region, and allowed it to remain eight hours, or until it had drawn a deep blister; then removed it and injected hypodermically the one-seventy-fifth part of a grain of sulphate of strychnia in solution, morning and night, rapidly increasing the dose, and also carefully watching its effect, until I had given as much as the one-fifteenth of a grain at a time, with the most marked and satisfactory results.

This treatment was persisted in for a little more than a week, at the expiration of which time all medicines were stopped, and the man remained in the hospital for more than a month, and experienced no return of his former trouble. The second night after the treatment was begun, he slept all night, and when he arose in the morning, to his surprise he found his bed-clothing dry for the first time, he asserted, in four years. From that time until he passed from under observation he was entirely relieved.

The second case, treated in the same manner, was a young lady sixteen years old, from Virginia, and had from her birth, as her mother informed me, been subject to involuntary discharges of the contents of her bladder during sleep. The attacks recurring only during sleep, might be rationally explained by the supposition that the efferent inhibitory nerve fibres distributed to the part being partially relaxed, and their moderating action upon the central spinal action to a certain extent being impaired by sleep, the tension of the weakened spinal centre is no longer reïnforced by an active encephalon, and consequent upon this relaxation we have the discharge. This patient had been treated in New York, and also in the South without relief, and her parents could with difficulty be induced to have any further attempts made to remedy this so distressing condition. They were in despair when they brought her to Baltimore, and had, as they said, "lost faith in doctors."

She was put immediately upon the treatment used in the preceding case, and the second night after the strychnia was given the desired effect was produced; after that the medicine was repeated twice a day for two weeks, with the exception of one night, and that night she had some slight discharge, as the sheet was found to be moist the following morning. This circumstance, however, instead of diminishing, rather increases the interest of the investigation; for taken in connection with the history of the case, the treatment and the result, it appears significant of an important therapeutic fact—viz., that to the agents used the result must be attributed. This patient continued to take the remedies prescribed for two weeks, and remained under observation for one week afterwards, when her parents deemed her sufficiently recovered to require no further attention, and returned home.

Since that time I have treated four other cases, all in the same way, with the most flattering success. One case, however, proved more intractable, and gave me some trouble, by evincing a tendency to return when the medicine was omitted even for one night. A medical friend of this city, at my suggestion, adopted the same treatment upon a child of his own, with entire recovery.

A point of interest is to be observed in the different action produced by the same drugs, upon the same system, administered by a different method; for it will be remembered that the sailor, the first case treated, was given both strychnia and cantharides by the stomach without a beneficial effect. But so soon as the same medicines were given the same patient from a different source, they at once accomplished the purpose for which they were intended. It is probable this may be explained upon the hypothesis, that the gastric juice so acts upon some principle of strychnia, when taken into the stomach, as to alter, modify, or even neutralize or destroy its efficient power. Whatever may be the explanation of the modus operandi of this medicine, given hypodermically, and even though the above suggestion prove utterly untenable, the result, thus far, is the same, and in every case was found to be productive of good. Nor am I disposed to attach a minor degree of importance to the epispastic used; for so profound an impression as a blister fly produces could not but awaken the dormant and relaxed energy of the nervous centres, and through them exert an enlivening and invigorating effect upon the bladder and its appendages.

During the progress of the treatment of the foregoing cases, I have attended not less to the condition of the blister than I have to the exhibition of the strychnia, and from time to time during the management of the disease, have applied stimulating and irritating applications to the vesicated surface, and on one occasion reäpplied the cantharidal blistering ointment, with a decidedly beneficial effect. I have adopted the same plan of treatment as given above in a case of seminal emission, and, if I might judge from so limited an experience as one case affords, I should be induced to believe it to be equally as efficient in this affection as in enuresis. If further investigation prove this mode of treatment to be substantially unsuccessful, I still think it worthy of mentioning. For it has cured six cases, all in fact upon which it has thus far been used, and that too when the heretofore most approved plans of treatment had been employed and failed.

If I may have appeared too sanguine in regard to this novel procedure, I have no other apology to render than simply to state, that it certainly appears to me I have reason on the one hand and a limited amount of experience on the other to offer as evidence in its support.

ART. IV.—TREATMENT OF HÆMORRHAGIC MALARIAL FEVER.

By WILLIAM A. CAVENESS, M. D., New Salem, Texas.

Of the causation, etiology or pathology of this disease, but little will be said. As for the *name* of it, that at the head of this article is as significant and, perhaps, as appropriate as any. The most correct account of its history, symptoms and pathology that I have seen, may be found in an article by Dr. B. F. Humphreys in the "Nashville Journal of Medicine and Surgery" for March, 1874.

As to the treatment, the following is submitted with the belief that it is more correct and successful than any that has been proposed. The indications of treatment are:

1. To control nausea and vomiting.
2. To arrest hæmorrhage and control the fever.
3. To arrest the paroxysms, and when these are accomplished,
4. To build up the system and thus prevent a relapse.

(*a.*) If the patient is vomiting a bluish or greenish substance, generally f℥ij of a moderately strong solution of bicarbonate of soda or potassa, repeated every half hour or hour, will prove sufficient, though it is best to alternate with the following ℞: Tinct. Gelseminum, gtt. x.; Acetate Morphia, gr. ¼; Sub. Nit. Bismuth, grs. iij.; to be given at once.

Carbolic acid is good in some cases. Most often there is an acid condition of stomach and system generally, so that the alkalies before mentioned are preferable.

(*b.*) Spirits turpentine is the remedy, par excellence, for the hæmorrhage. In severe cases, ten drops of turpentine may be given every one or two hours, at first, and then diminish the dose as may be required. A favorite prescription is to combine with it a sedative, as aconite, if much fever, or belladonna, if much congestion; and if much restlessness, gelseminum and tinct. opii., if not contra-indicated. Bromide of potass and hydrate chloral have relieved the great restlessness in some cases where the gelseminum and opium either failed or were contra-indicated. It seems that opium, unless modified by the gelseminum, is rarely, I believe never, admissible in severe cases.

(*c.*) *The Paroxysms.*—The fever, in all the severe cases that I have seen, has been continuous; though, like the ordinary remittent or bilious fever, it has a tendency, in favorable cases, to eventuate in the intermittent fever, and only when this takes place is it necessary to use quinia. The truth is, excepting in the intermittent, paroxysmal, or mild form of the disease, quinia is worse than useless; and when it is indicated, it is altogether unnecessary to give it in enormous doses, but it should be given as in other intermittents, or, in other words, as if there had been no hæmorrhage.

It is generally necessary to give a cathartic, but this should be mild. Calomel does harm. Leptandria combined with co. ext. colocynth and ext. hyoscyamus, with perhaps a minute quantity of podophylin, is the best. Blisters do harm, though sinapisms may be used, with benefit in some cases, over the kidneys and stomach.

In most of the articles written lately in regard to this disease, tinct. of iron has been highly recommended for the hæmorrhage, but in this section of country it has not stood the test. It is only admissible where acids are needed in the system, but as before remarked, there is nearly always an acid condition of the stomach and system. Whenever the vomiting and hæmorrhage are arrested, especially the latter, the patient may be considered measurably safe; but there is probably no disease which requires as prompt treatment and as constant attention by the physician; and he should never be in haste to dismiss the patient. Even after convalescence has been fairly established, the patient should be enjoined to use a few drops of turpentine, say three times a day, in addition to such tonic treatment as may be suggested to the mind of the practitioner. Frequently strangury will result from using the turpentine, but this is generally relieved very readily. It is not pretended that this treatment will cure *all* cases. I have seen them die in eighteen hours after the disease has been manifested; and in such cases no remedy will be of any permanent benefit.

ART. V.—ERGOT AS A HÆMOSTATIC. By J. A. LARRABEE, M. D., Louisville, Ky.

I have of late made quite extensive use of ergot and its preparations, both internally and externally, for the arrest and control of hæmorrhage; and have always found it to act with promptness whenever a reliable article can be procured. Only a few days ago I was called at daylight in the morning to visit a little girl about six or seven years of age (six and a half years). The messenger bade me hasten, and stated that the child had bled to the extent of two quarts of blood. Upon arriving at the bedside, I found the statement was not exaggerated, as I had supposed, but that the estimate was not far from correct, and many clots not measured were lost in the bed-clothing. She was lying almost pulseless, with blood slowly oozing from the nostrils, mouth and rectum; skin and mucous membranes blanched; skin having a slight yellow tinge. Many remedies had been tried in the night with no avail, and ice had been used freely.

I immediately procured a very good fluid extract of ergot from a neighboring druggist, and also some of the freshly-powdered grain, which I blew into the nostrils with a blow-pipe; I then gave a drachm of the extract in water to be swallowed, and injected several drachms, with iced water, into the rectum; the first dose by stomach was vomited, along with several clots of blood; another dose was given and retained; the injection remained; from this time all hæmorrhage ceased entirely; some stools passed before I saw the case; were examined, and found to consist mostly of blood, with slight admixture of fæcal matter. The lower extremities were covered with petechiæ, and upon the thighs and trunk and arms, large vibices and ecchymoses had made their appearance.

The danger now imminent was the occurrence of syncope, with result of "heart-clot." The great restlessness and constant jactitation due to the great loss of blood made it difficult to restrain her from throwing the head up. The attendants were directed to keep the room dark and cool, and the head on a level with the body, and to allow her to drink freely of tea (cold) from "Valentine's Beef Juice," seasoned with salt; and also to use sherbet and ice-cream to relieve the great thirst. In an hour after the cessation of the bleeding, I put her upon mur. tinct. ferri with digitalis; the urine, which was smoky, has now become clear; some digested blood was passed at stool next day; the petechiæ are disappearing, and the ecchymoses fading into a yellow stain, and although exsanguinated, she is doing well. Arsenic (Fowler's) to be given with wine of iron; omit the digitalis; pulse is good.

The case was plainly purpura hæmorrhagica, and the attack was sudden. The child had gone to bed in ordinary health, and awoke with the bleeding after midnight. She had had no illness during the past two years, at which time she had whooping-cough, and bled considerably from the nose. The family had not suffered from malaria, and the hygienic surroundings were considered good; moreover, the comfortable circumstances of the family excluded the idea of lack of proper food or vegetables, and the use of salt-meat diet. The mother had noticed in time past *black and blue spots* upon the child, and had wondered that it should get so many falls and bruises, but she had thought nothing more about it until questioned at this time.

ART. VI. — TREATMENT OF VENEREAL WARTS. By G. W. LAWRENCE, M. D., Resident Physician, Hot Springs, Ark.

Hypertrophic degeneration of structures, specific or otherwise, known as "venereal warts"—erroneously called vegetations, from peculiarity of growth—are found in both sexes. The genitals and arms are the parts usually involved. Sometimes these structural lesions are quite large, and the formation very rapid. When located about the preputial and labial surfaces, where irritative secretions abound, the discharges from these excrescences are of an offensive nature, and truly disturbing to the afflicted.

In treatment, we rarely find any difficulty in arresting such morbid growths, or in removing the developments, without the knife, scissors, ligature, or galvano-cautery.

Monsel's Solution of Iron applied once or twice a day to the affected parts, with a camel's hair-brush, will soon destroy the degeneration.

When the discharges from this form of "condylomata" are very fœtid, generally we first cleanse the parts of all secretions with carbolic acid water, and instead of the Monsel Solution, we sprinkle the surfaces of the "warts" with finely-triturated powder of the persulphate of iron.

Personal cleanliness is the most reliable prophylactic to guard against the growth, and also the best safeguard to control the agency of inoculability of venereal warts.

ECLECTIC DEPARTMENT.

"Carpere et colligere."

ART. I.—ON THE NATURE AND CURABILITY OF PULMONARY PHTHISIS. [Translation of a Lecture delivered before the German Medical Association of Baltimore.] By DR. W. GLEITSMANN, Baltimore, Md.

But few other departments of internal pathology have undergone so great, and we may say so beneficial a change during the last ten years as the doctrines of pulmonary phthisis, which I purpose this evening briefly to sketch. Views that up to that time had been considered infallible dogmas, were overturned, the number of their adherents growing less from day to day. In the field of pathological anatomy the new theory has been generally accepted, chiefly through Virchow's labors. Notwithstanding the stern antagonism with old, deep-rooted prejudice, it has gained strength continually by the force of its own merit, so that now the truth of its principles is acknowledged by almost all authorities.

I have endeavored in so far as the literature was accessible to me, to do justice to all views of importance and to classify them. To this end I will commence by briefly reviewing the old theory, and after relating the facts and investigations, which induced its overthrow, proceed to explain the new doctrine in accordance with the conceptions of various scientists. As the views of the etiology of the disease have changed with the new pathology, I must touch upon this point also, before passing to the symptomalogy. I beg to remark at the outset, that it is not my intention to give an exhaustive description of the symptoms and course of the disease, but to discuss these only in so far as it may be requisite to distinguish the different morbid processes and phenomena. Nor shall I in therapeutics enter into details of the various remedies generally recommended and adopted, but merely enlarge on those primary principles, which alone can serve as a basis for a cure of the disease.

When you take up an old hand-book of the practice of medicine and turn to the chapter on pulmonary phthisis, you will generally find two paragraphs upon the subject, the one treating of chronic, the other of acute tuberculosis of the lungs, the former being sometimes styled chronic consumption, the latter acute miliary tuberculosis. The first disease commences by a deposit of miliary growths, called tubercles, which, according to their metamorphosis, as well as their slow or rapid development, produce the well-known symptoms. It was Laënnec, the estimable father of percussion and auscultation, who represented the formation of tubercle to be the primary pathological symptom in a lung diseased by phthisis, considering all further alterations as secondary consequences of tubercle. According to his idea, consumption and tuberculosis were one and the same disease, having always a constitutional basis, but never being developed from other local disorders. A chronic catarrh presenting the symptoms of phthisis in its further development, was, according to his view, caused by secondary irritation due to deposit of tubercles. It was in like manner his opinion, that in all cases where the first traces of consumption closely succeeded a bronchial hæmorrhage, tubercles were developed simultaneously or even previous to the hæmorrhage. Laënnec regarded, as indeed we still do at the present day, the tubercle-granule to be a new growth, but he attributed to it special qualties, which do not in reality pertain to it. The most frequent alteration to which the tubercle is subject, is the caseous metamorphosis. The fresh, grayish, transparent tubercle does not possess any blood-vessels of its own; as it is therefore nourished with difficulty, it becomes all the more readily a prey to caseation and an anæmic destruction, when its nourishment is impeded by pressure or the close proximity of other tuberculous deposit.

As it was the belief in former times, that tubercle alone possessed the capability of undergoing this caseous metamorphosis, the logical deduction was drawn from this assertion, that all such caseous deposits were the result of former tubercular formations. It was this opinion, however, that, by presenting the point of attack, gave the first impulse to reform and total subversion of the doctrines of Laënnec.

Virchow has proved, that not only tubercle has the property of assuming the caseous metamorphosis, but that other growths of entirely different nature, as for instance old cancer-knots, swelled lymphatic glands, hæmorrhagical infarctus, etc., can show quite the same changes,—that this is therefore no specific quality of the tubercle. The assertion, that every such caseous alteration was a tubercular infiltration, a tuberculization, became obsolete; Niemeyer having for some time argued in opposition to it.

As a further proof against the identity of consumption and tuberculosis of the lungs, it has been frequently demonstrated upon minute examination, that, what had been formerly considered tubercles, showed themselves to be the smallest bronchi with caseous contents or condensed alveoli with caseous infiltrations. In numerous post-mortems of consumptives, the remarkable fact was established, that not a single tubercle could be found in the lungs, but all changes found were the results of other processes, chronic and indurating pneumonia, on which I will touch later. In such cases, where besides condensation and destruction of the lungs, tubercular deposits are to be found, an unprejudiced examination will frequently elicit the fact, that the tubercles, when accompanied by those pathological changes alluded to, have been developed at a later stage. The tubercle is to be most frequently met with and in closest proximity at those places, where the destruction is most advanced, that is to say, where the original disease had its commencement and first seat. In like manner caseous deposits are found almost without exception in other organs, when tuberculosis appears in lungs previously sound and free from caverns, this being surely a proof of the dependence of tubercle on other products of caseous metamorphosis.

That the miliary tubercle finally can not be considered an exclusive characteristic of individual disease, has been proved by the inoculations of various experimenters. Villemin in the year 1866 published the results of his attempts at inoculation in the "Gazette Hebdomadaire"; he injected the matter of tubercle as well as caseous substance. Others, and amongst them Lebert, confirmed and extended these researches. According to Villemin the mere injection of caseous substance was sufficient to produce miliary tubercles in rabbits and guinea-pigs. He obtained the same result with tubercle-substance. It was afterwards shown that by injection of matter, as Lebert did, or by embodying blotting-paper or gutta-percha (Cohnheim and Fränkel), sponge or cork (Ruge), mercury and coal (Lebert, Wyss), granular anilin (Waldenburg) miliary bodies can be produced. These experiments positively teach us the non-specific qualities of the tuberculosis, and the local production of tubercle in consequence of various interferences. The former assumption of a constant constitutional basis of tuberculosis must be therefore relinquished.

In these words the main principle of the new doctrine is expressed. Whilst Laënnec traces all caseous knots and caverns in the lungs back to previous tubercles, the conviction has been obtained by reason of the above data, that in most cases the basis of consumption does not in the least consist in tuberculosis, but nearly always originates from various pneumonic processes.

Although scientists without exception adopt the opinion that consumption seldom or in very rare cases commences with tubercular deposits, their views nevertheless diverge in regard to the pneumonic processes giving rise to consumption; nor has an agreement so far been arrived at. The greater majority, with Virchow in the lead, declare, that during pneumonic changes the primary exudation is deposited in the free spaces of the smallest bronchioles and alveoli, and is observed in croupy, acute, chronic and catarrhal pneumonia. On the other hand, two investigators of our day, Rindfleisch and Buhl, look upon the inflammation as parenchymatous and interstitial. Last of all I must mention, that Niemeyer, although he coïncides with Virchow in all other respects, believes, bronchial hæmorrhage, by irritation of the alveolar walls to be productive of inflammation and consequent caseation.

If we proceed to regard the various forms a little closer, it will be found, that amongst the abnormal terminations of croupy pneumonia, tuberculization, or to designate it more correctly, caseation, was known long ago. The conditions requisite to its appearance are not yet elicited, since healthy persons, as well as those already possessing caseous deposits and caverns, are subject to this termination of pneumonia, which, however, takes place but seldom. Emphysematous patients are more liable to it than others.

In acute catarrhal pneumonia, where we have an extension of the catarrhal process from the minutest bronchi into the alveoli, these latter become crowded with young, newly-grown cells; the tissue of the lungs condenses, assuming at first a brownish-red color on account of the hyperæmia; and later growing paler. The diseased parts can, as in croupy pneumonia, again be made accessible to air and restored to soundness through changes in the exudation leading to the formation of mucus, through fatty degeneration and resorption of the deposited cellular exudation. In unfavorable cases, however, the cells crowd together still closer, the fatty metamorphosis remains incomplete, and in turn the tissue of the lungs changes to a dull, yellow, caseous mass. Catarrhal pneumonia, appearing mostly during childhood as a companion of measles, whooping-cough, croup, rachitis and scrofulosis reveals, according to the careful researches of Fiemssen, its complication with catarrhal bronchitis by an increase of temperature up to 104° F. and of the fever-symptoms generally. Not only children are liable to it, but particularly weak, delicate adults, with whom there is a tendency to repetition. Strong, healthy persons can likewise become subject to its attacks, running the risk of consumption, by the change of the profuse cellular exudation into caseous substance. Such cases, taking a very rapid course, are vulgarly termed galloping consumption.

Chronic catarrhal pneumonia is succeeded by symptoms that were formerly considered tubercular infiltrations and gelatinous infiltrations. The disease is quite as frequent as was formerly asserted of tuberculosis of the lungs. The pathological action is the same as described above. It can be readily understood, that, during the tedious progress of the disease, the massing of cells in the alveoli, these deteriorating by adjacent pressure, shrink, and become subject to the caseous infiltration. Here fatty metamorphosis and resorption of the exudations are possible, but it is apparent that this takes place with less ease and frequency. In such cases condensation of the lungs would again disappear and the patient recover. All that has been said of the acute form applies as well to attacks of chronic catarrhal pneumonia, to which, however, grown persons are more disposed. While in previously healthy persons this form of pneumonia forms the foundation of all those disturbances of nutrition that lead to consumption in already diseased constitutions, it becomes the means of extending and increasing degeneration and condensation.

Before I proceed to investigate the views of Rindfleisch and Buhl respecting the pneumonic processes favoring consumption, permit me shortly to review all that has been treated of.

1. We see that a neglected, protracted catarrh can very easily extend into the alveoli of the lungs, inducing caseous infiltrations and consequent consumption by deficient fatty change or through pressure exerted by the cellular exudation.

2. That as a rule the condensation and destruction of the lungs of consumptives are in the majority of cases the results of pneumonic processes.

3. That the patients are more subject to the danger of such disease and deleterious products in proportion as they are weak and badly nourished, inasmuch as the inflammatory processes have a decided tendency to cell-proliferation.

In passing over to the views of Rindfleisch and Buhl, I beg to request you not to forget, that, however they, and especially the former of them, again approach the old opinion, neither of them believe in the dependency of consumption on the primary appearance of miliary tubercle in the tissue of the lungs, according to Laënnec. In the Transactions of the Medical Society at Bonn and at the meeting of German Physicians and Professors of Natural Science, held at Wiesbaden in September last, Rindfleisch has expressed his opinions, maintaining that those forms of inflammation causing phthisis and the primary caseous deposits, are occasioned by a parenchymatous inflammation, to which he ascribes a tubercular nature from the beginning. He argues this by reason of the similar histological construction of the miliary tubercle and caseous deposits, which both exhibit great accumulation of the lymphoid cells and granules in connection with the giant cells. The process is said to have its rise in the bronchial walls, extending over the alveolar septa. As the miliary tubercle has its favorite seat in the walls of the blood-vessels, the vessels are likewise the starting point of the inflammation, which he consequently designates as perivasculitis or tubercular inflammation. The change from infiltration to caseation he assumes to be caused not so much by pressure, as by chemical alteration of the protoplasma and the nucleus of the cell.

Whilst Buhl also looks upon the inflammation in question as parenchymatous, he denies the possibility of a transition of croupy or catarrhal pneumonia, of chronic bronchial catarrh and bronchial hæmorrhage into caseation; the latter, according to his representation, always having a parenchymatous inflammation as its foundation. He holds, that this inflammation does not consist of superficial secondary disturbances, as in catarrhal and croupy pneumonia, but of a gelatino-albuminous infiltration and alteration of the alveolar walls and interstitial tissue. He calls this desquamative pneumonia, because it is accompanied by generation and shedding of bronchial and alveolar epithelium, the exudation consisting of desquamative epithelium. Buhl here further describes an inflammatory process of the finest bronchi, called peribronchitis, which, with a preponderating development of connective tissue corpuscles, has a tendency to terminate in scaly induration, cirrhosis of the lungs, but which in connection with cellular development in the adventitia of the minutest vessels leads by the interruption of the circulation to tissue-death and caseation. The desquamative inflammation is often connected with peribronchitis.

In opposition to the views of both Rindfleisch and Buhl, Virchow maintains his standpoint with decision, insisting that the parenchymatous processes they speak of, if they exist at all, are of secondary character. The histological criterion which Rindfleisch finds for the tubercle, he declares untenable, and he warns earnestly against the introduction of old expressions into terminology, as this can only result in confusion.

In regard to Niemeyer's opinion, that bronchial hæmorrhage leads to inflammatory irritation and caseation, many contrary views have been advanced. After the injection of blood into the air-passages of animals (by Sommerbrodt), cellular elements were nevertheless found in the alveoli as a sign of catarrhal pneumonia. Niemeyer's view might consequently appear correct, and the more so, as clinical experience often shows perfectly healthy and sound persons to have been seized with phthisis immediately after a bronchial hæmorrhage and dying of it after a few months.

When caseous deposits have formed in the lungs through one agency or another, they can become cretaceous during rapid formation of connective tissue, or can exist for some space of time before they break down and give occasion to the formation of caverns. By far the greatest danger threatens the patient from the fact, that the existence of these caseous deposits favors the appearance of tubercle, thus tuberculosis being added to consumption. Tubercles so frequently appear in lungs containing the residues of chronic inflammation, that their frequent appearance lead us to conclude on a casual connection conditional on the caseous metamorphosis of the pneumonic processes. The reason why tubercles have a greater tendency to form in the lungs than in other organs, is explained by the fact, that lungs are much more easily inclined to diseases followed by caseous deposits.

Acute miliary tuberculosis, which I have not mentioned so far, being based upon the formation of numerous minute tubercular bodies in the lungs and other organs, is explained by Buhl as a disease of infection through preëxisting caseous deposits, with which view the clinical results might agree. Nevertheless, many observations have proved its appearance without the existence of such deposits, and a constant dependency on these latter can not always be traced.

Having detained your attention by such lengthy pathological explanations, I crave your kind indulgence on the ground, that on this basis I can more freely explain all remaining etiological, clinical and therapeutic deductions.

As to etiology, I shall only touch on the hereditary tendency, on the connection of scrofula with consumption, the influence of want of pure air and the inhalation of various dusty products,—passing over all other points, as we have already seen that delicate constitutions and all influences that materially impede the nutritive process, predispose to those diseases, which, by inducing a profuse formation of cells, give rise to consumption.

According to the views I have developed, you will concede, that we may speak of an hereditary tendency to phthisis, but not to tuberculosis. Those parents, who were consumptive or suffering from other exhaustive diseases at the time of generation, can beget children who possess only small power of resistance. On reaching the age, when diseases of the meninges, the skin, the bowels, etc., are replaced by pneumonic processes, such children become more readily a prey to these diseases, than healthy children, being more subject to such dangerous influences on account of their constitutional anomaly. Hereditary tuberculosis can only be assumed in those cases where the children acquire tubercular meningitis from diseased parents; but even in such cases we shall seldom fail to find degenerated bronchial or lymphatic glands. I add the observation, that the statistic data represent about ten per cent. of hereditary tendency.

As scrofulosis has a tendency to copious accumulation of cells in lymphatic and bronchial glands, which are with difficulty absorbed, those persons will be open to greater danger, who are at an age, when former scrofulous products have not yet been absorbed and lung diseases become more frequent, than healthy persons or such as have entirely recovered from previous scrofula.

The pernicious influences of impure air may be daily gathered from the reports of prisons, barracks, factories, foundling and orphan asylums. I will give you a few proofs in figures, which I have gleaned from Hirsch and Brehmer. Although mental depression has great weight with prisoners, its influence is nevertheless acknowledged to fade from day to day during confinement. Accordingly Baly states, that in the Millbank Penitentiary in London, amongst 1000 prisoners, there died from phthisis and scrofula during the—

First year of imprisonment		6
Second year of	"	31
Third year of	"	49
Fourth year of	"	52
Fifth year of	"	63

To prove that incarceration is the cause, it is shown, that of 3,249 prisoners admitted in 1844, only 15—viz., 4.6 (per thousand) were already subject~~s~~ to the disease. In the prison of Petonville there died on an average up to the year 1844, 11.14 persons, and the disease disappeared almost entirely as soon as better ventilation was introduced. Even animals are influenced by privation of fresh air. In Paris, for instance, those monkeys which were kept in magnificent but close cages, died of phthisis, whilst others, which were subjected to all the inclemency of an out-door habitation, enjoyed comparative immunity. I could easily increase these examples, but will only add one point more, which shall, at the same time, lead us to the last subject still to be discussed. In the whole State of Massachusetts the mortality by consumption averaged annually between 1841–49 3.0 of the entire population, whilst at Boston and the mnufacturing city of Lowell alone it reached 3.8. We can therefore recognize the unwholesome influence of factories, the air of which is burdened with dusty particles. I add the remark, that according to an assertion of L. Hirt, amongst 100 sick laboring men, who have dusty work, 22.5 suffer from phthisis, and amongst 100 workmen, who are otherwise engaged, only 11.1. The changes in the parenchyma of the lungs have been designated by various names, according to the quality of the dust that has penetrated, thus, for instance, coal-dust produces anthrakosis, gravel-dust chalicosis, iron-dust siderosis, or as Zenker also calls it, pneumonokoniosis siderotica, designating by these names the various forms of scaly induration and cirrhosis of the lungs. Hirt again has shown the connection of dust with development of consumption. The latter as well as cotton-dust has a specially detrimental influence on phthisical pneumonias, on account of its mechanical irritation. Coal-dust acts less unfavorably and produces mostly bronchial catarrh.

As a discussion of the symptomatology of phthisis does not belong to the tendency of my lecture, I will confine myself to proving the existing difference in the phenomena of a simple consumption and the disease, when complicated by tubercular deposits, although the latter may have accompanied the caseous deposits from the commencement, or made their appearance secondarily. I shall, in like manner, add a few remarks on the acute miliary tuberculosis.

In these explanations I make use of a small comparative table which I have constructed. Although possessing no claims to exhaustive accuracy, it may, nevertheless, serve to throw some light on the subject, as the differences are thrown out in stronger relief here than at the sick-bed.

Differential Diagnosis Between

PHTHISIS.	PHTHISIS WITH CONSEQUENT TUBERCULOSIS.	ACUTE MILIARY TUBERCULOSIS.
The frequency of respiration we know to be accounted for by reduction of the breathing surface, by accompanying catarrh, by the painfulness of respiration and chiefly by the fever.	Intense frequency of respiration and distressing dyspnœa succeeding previous slight shortness of breath, without evidence of increased condensatien of the lungs are the most important symptoms.	Increased frequency of respiration without dullness on percussion and without bronchial respiration.
Cough and expectoration frequently precede the disease, and are succeeded by fever, emaciation and pale skin.	If cough and shortness of breath have, from the beginning, been accompanied by fever and emaciation, before the expectoration grows profuse, we may suspect tubercular phthisis.	Cough and expectoration begin only after the patient has rapidly grown weak, pale and thin.
Sputa are numerous, being clotted and sinking to the bottom of a vessel. Elastic fibres in the expectoration always point to destructive processes in the lungs.	Hoarse, dull-sounding cough is always suspicious in advanced stages of phthisis. Sputa consist purely of phlegm, being tough and transparent.	Hoarse, dull-sounding cough from its commencement, with tough, transparent sputa, without marked physical signs in the chest.
Intestinal and laryngeal symptoms are rare.	Intestinal and laryngeal symptoms appear in the course of the disease.	Intestinal and laryngeal symptoms show themselves at an early stage.
Fever sets in when catarrh extends from the bronchial mucous membrane to the alveoli. The fever is of remittent type, the difference between morning and evening temperature 1° to 1.5° Cels.	Fever differences of much less account at morning and night, therefore a continued type of fever gives a much worse prognosis.	Fever and emaciation begin before expectoration.
Dullness, bronchial respiration, coarse râles; increase of these symptoms keep pace with the advance of the disease.	The percussion sound not dull but empty; rapid respiration and scanty expectoration point to a decrease in the air capacity of the lungs through tubercle. High fever and emaciation without corresponding progress of dullness.	At first, negative physical results with unusual shortness of breath, fever; later symptoms of condensation.

In order to guard against misconception, I once more repeat, that the symptoms rarely appear in the decided and unmixed manner set forth above. In practice, the boundary will rarely be so clearly defined, especially between the two first diseases. I believe, however, that a consideration of the above remarks may assist in a decision in doubtful cases, which may be of importance to the physician as well as the patient; therefore I request that my remarks be looked upon in this light only.

In turning to the last part of my subject, I shall make a few communications as to the spread of consumption, from which you will observe the existence of the disease in almost every country under the most diverse climatic conditions. In speaking of the regions that enjoy immunity from phthisis, we shall have to trace those conditions that are favorable to a cure of this disease.

If we take up the excellent historico-geographical pathology of Hirsch, and turn to this subject, we will find phthisis to be spread over all five great divisions of the globe. The mortality amounts from 1.7 to 7.00 of the population, moving mostly between the figures 2.5 and 3.5. The last report of the Philadelphia Board of Health shows a similar proportion. In Philadelphia there died in the year 1872, of a population of 725,000 souls, the total number 18,987, of which 2,249 deaths resulted from phthisis, and accordingly 3.10 of its population. Baltimore, with 303,000 inhabitants, shows a total mortality of 8,851 in the year 1872 and 7,614 in the year 1873. The deaths by phthisis in 1872 amounted to 972, therefore 3.20, and in 1873 to 1,008, therefore 3.32 of the population. As other statistics correspond nearly to these figures with only slight variations, I will not further claim your attention by tedious iteration, but merely present you with a combination, showing, at a glance, the independency of phthisis from climatic influences. Hirsch gives three columns of figures representing the mortality by phthisis among 1,000, choosing those countries the temperature of which offers the greatest contrast to each other. The degrees of temperature represent

per thousand

the average yearly standard, and are given according to Reaumur (4° = 9° Fahrenheit).

SCALE OF MORTALITY.

1. Amongst entire population—

3.6—3.8 in Boston (7.3), London (8.4), St. Louis (10.3), Charleston (15.2).
3.3 in Copenhagen (6.0), at Malta (15.4).

2. Amongst English troops—

3.5 in Newfoundland (2.8), Ionian Islands (13.0), Gibraltar (15.8).
3.9 in Canada (5.6), Mauritius (20.7).
4.3 in New Brunswick (3.6), Malta (154).
6.2 amongst European troops at Jamaica (20.5), and amongst the cavalry of the Guards in England.

3. Amongst North American troops—

2.4 in the western inland States, West, (8.4); in the western inland States, South, (13.0), and on the southern boundary of Texas (17.9).

As these tables are constructed on older data, a few discrepancies with recent reports may exist, but they are not in any case of so much account as to deteriorate the present value of these figures. Hence you will gather that not only the latitude of places, but also dampness of air, as well as social conditions and mode of life, are without positive influence.

Of those places where immunity from phthisis exists, I have to mention the island of Iceland, the Faroë islands, the Kirghis-steppe, near Orenburg, and elevated mountain altitudes. In the first three countries no conditions are to be met with that favor exemption from the disease. The long winter of Iceland and the Faroë islands, the severe storms, which are so intense as to upheave boulders and rocks, the air impregnated with salty particles, the intensely filthy habits of the people, who consume their meat and fish in a partially putrid state rather than when fresh—whilst the Faroëse washes his woolen clothes in urine—are surely influences that can in no wise be advantageous to patients. Nor can we apparently find any favorable conditions in the Kirghis-steppe, where the air is loaded with fine-sand, and the coldest month shows 51.5° R., the warmest 16.1° R., on an average; in nine days, from 17th to 26th December, 1839, a medium temperature of -24.8° R. was observed, the lowest point of cold being -35° R., and the greatest warmth in August +37° R., in the shade. The endeavor has been made to explain the immunity of these three places by the mode of life of their inhabitants, as fat and fat-producing substances are consumed by the two former, and by the latter the koumiss or fermented mare's milk is consumed in enormous quantities. The dietary influences appear, however, to possess some intimate connection with the people's habits, as Icelanders, who have emigrated to Denmark, were attacked by phthisis. Many attempts have also been made to prepare the koumiss in other countries for the use of patients, but with little success. Only quite lately Dr. Simon in Berlin has advertised an establishment of this nature.

In turning our attention to elevated countries, we find that von Tschudi was the first to point out the non-existence of consumption on the Andes of Peru. Mühry, in his Climatological Researches, and Fuchs, in his Medical Geography, followed the subject further, finding immunity in many places. Of these I will only mention the table-lands of the Rocky mountains and their southern continuation, the Cordilleras de los Andes, further in the tropics the mountainous boundary of the northern coast of South America, the towns Santa Fe de Bogota, 8,100′; Quito, 8,970′; Potosi, about 1,2000′; and particularly the Puna region of the Peruvian Andes, 11,000′—14,000′, with the towns Caxamarca, Shicuipampa, 114,000′, Cerro de Pasca, 13,228′. In Europe the line is lower, and can be found in many places at 2,000′; already, as for instance, on the highest points of the Harz, the Erzgebirg, the Carpathians, the Spessart, many places in the Alps, that have become known on this account, as in Pinzgan, Styria, Carniola, on the western section of the Pyrenees, in Switzerland, at an elevation of 4.500′, whilst in many places below the level of 2,000′; in the Vosges, the Jura valleys, the Odenwald, phthisis very frequently occurs. In Africa immunity exists, on the plateaus of Abyssinia; in Asia, on the high plateaus of Armenia and Persia; on the highest points on the western Ghats and Nilgherry mountains in Lower Bengal, 4,000′—7,000′; in less degree also in the mountain districts of Java and the table-land Nuwera Ellgia of the Island of Ceylon, 6,500.

From this combination you will conclude, that constancy of the element of altitude is exhibited in the most varied latitudes. Moreover you will observe, that the nearer we approach the equator, the higher the elevation at which immunity commences. Before concluding, allow me to impress upon you once more the fact, that altitude is the cause of immunity. The want of connection between phthisis and temperature is clearly proved by the tables quoted from Hirsch. The same frequency of consumption in the United States as in other countries shows that the greater dryness of the atmosphere in high places is not the reason alone. (The dryness of the air in America has been shown by the American naturalist Desor in a brilliant lecture delivered before the Swiss Meeting of Naturalists in the year 1853). The purity of the mountain air can not be accepted as the reason either, as the same influence fails to exempt the lowlands from disease. Nor again can the ozone of the air be made accountable, as just in winter-time, when the ozone is considerably increased, consumpion so frequently takes its commencement. We can therefore deduce only the one fact of altitude, or what is synonymous, rarefaction of the air, the influence of which must be explained as follows. As I have endeavored to prove, phthisis is based upon a caseation of inflammatory products, which disposition to caseation is most probably to be found in a certain dryness or relative bloodlessness of the lung-parenchyma. The rarefied air produces a greater flow of blood in the peripheric organs, and especially in the lungs and consequently in the heart also. Therefore it acts in direct opposition to those conditions, which engender a disposion to phthisis, as I have already indicated in my article, giving a description of Waldenburg's portable pneumatic apparatus.*

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* Baltimore Physician and Surgeon, March 1, 1874.

In addition, mountain life induces an increased exercise of the chest in consequence of the increased respiration produced by the rarefied air. It will not be needful to explain more fully, that rich, nutritious diet especially of fat-producing substances, the greatest possible amount of fresh air, antipyretics in the widest sense, amongst which I also count the use of cold water, are not to be left unheeded.

On these principles several climatic establishments have been founded, whose happy results have amply proved the soundness of these theories in practice. The oldest of these is Dr. Brehmer's Institute in Görbersdorf, Silicia, Prussia, founded by him in the year 1854 under great difficulties. He has, up to 1879, treated 958 comsumptive patients. Of these 315 were already in the colliquative stage (these at S~~h~~adeira are quite excluded from the statistics). Of the total number of 958, only 47 patients died, or 4 4-5 per cent.; if you deduct 18 patients who were subjects of tuberculosis from these 47, a percentage of 3 deaths by phthisis remains, whilst 20 per cent. were *permanently* cured during the comparatively short treatment of eighty-six days. Besides Görbersdorf, Davos in Switzerland has also gained a good reputation by its successful cures.

Believing that I have shown you the curability of phthisis by conclusive facts, I beg only to observe to the practitioner, that he will be much more quiet and successful at the sick-bed in knowing the greater number of cases to be no deleterious new-growths, but only pathological processes, which are capable of amelioration by careful treatment, Nature herself having provided a climatic means of cure.

NOTE.—A most conclusive, logical and satisfactory demonstration of the effects of locality upon the origin and curability of phthisis.—E. S. G.

ART. II.—COLORADO AS A HEALTH RESORT. By CHARLES DENNISON, M. D., Denver, Colorado.

The following are some of my first *impressions* of this climate. Notwithstanding the usual belief—which is like the old adage, "A change of pastures makes fat calves"—that a change of climate and surroundings of most any kind is usually beneficial to the health of chronic invalids, nevertheless, a residence in this bracing climate has a peculiarly revivifying influence on most phthisical patients who come here early in the progress of their disease. Of course, every medical tyro knows that change of climate can not benefit those who have foolishly sojourned too long in dangerous localities. Dyspepsia, too, and most all ailments, due to mal-nutrition, are usually banished, or very much relieved, by a sojourn here. But the salutary influence of this rarefied atmosphere is also shown in the relief of asthma. It is said that few asthmatics have come here without permanent or marked benefit, the chief exceptions being those who have organic disease of the heart, or marked emphysema. Not long since, the asthmatics held a convention in Denver. The object was to gather their evidence, that those similarly afflicted throughout the States might be benefited thereby. It was a commendable undertaking and quite successful. Over a hundred cases were tabulated of those who had found entire or decided relief in Colorado. Many had suffered for a long time, and some intensely, unable even to lie down for months at a time. The report of the proceedings of this convention is to be printed, and probably will be cheerfully sent to any interested by Mr. F. J. B. Crane, Denver, Colorado. Mr. Crane is an estimable gentleman, who had been a sufferer from asthma many years, and has taken a prominent part in this movement.

The influences which seem to combine, in Colorado, to benefit sufferers from thoracic diseases, are various. Probably more important than is usually recognized, is *altitude*, which, it would seem, is chiefly mechanical in its effect, for consequent upon it there is lessened atmospheric pressure, and it is positively necessary for lungs to have a proportionately greater expansion, in order to get the needed amount of oxygen, than on the coast, five thousand three hundred feet below Denver.*

The circulation, of course, acts in harmony with this increased respiratory power, which results in increased combustion. Waste and repair are both more rapid and complete, and local congestions are relieved. The average rancheman of Colorado gives one an idea of the effect of out-door life in elevated regions. He is a *lean* fellow, with well-browned complexion, good; hard muscles, and great endurance. The idea of such a man having tuberculosis would seem almost preposterous. His blood is habitually well oxygenated. He may get pneumonia, perhaps resulting in gangrene or pneumonic phthisis; but it seems the origination of miliary tubercle rarely occurs above the altitude of five thousand feet. The increased amount of electricity, too, due to altitude, very likely has a salutary influence in strengthening enfeebled nervous systems.

The small amount of rain-fall (about twelve inches a year), the great amount of sunshine, and the porosity of the soil, favor a dryness of the atmosphere directly opposite to what Dr. Bowditch, of Boston, has proved, by tabulated opinions of physicians, to be a chief cause of phthisis—"soil moisture."

At the foot of the eastern slope of the Rocky Mountains, extending north and south, is a belt of land, say thirty miles wide, in the middle of which, toward the north, is Denver. This, including the valleys and parks among the mountains, will probably be the tillable portion of Colorado, because, as irrigation is necessary for the cultivation of most products, on account of the aridity of the soil, this land may "be brought *under ditch*" from the streams coming down from among the snow-capped mountains. The range is about a hundred miles wide in Central Colorado; and it is among these lofty mountains that the clouds are drained of thirty to forty inches of rain, or melted snow, in a year. Most of the latter remains, to be melted by the summer's sun, at just the season when water is of the most use to the farmer for irrigation. The soil is a deep, sandy loam, made up of the washings—the débris of centuries—from this vast mountain region, and seems to contain the chemicals, especially alkalies, for producing cereals of remarkable richness.

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* This fact is well shown and proved, in connection with the curative influences of the climate in the mountains of Switzerland and Peru.—E. S. G.

The wheat of Colorado is acknowledged to be unsurpassed by any in America. The beef of this country, from cattle who pick their own living all the year round from the short prairie-grass covering these broad, arid plains, is much better, and the milk much richer, than one would at first suppose. In addition to the above, venison, antelope, other spoils of the hunter, and a good market, afford variety in edibles.

The temperature of this part of Colorado in winter averages about the same as that in New England, southern, central, and northern Ohio, Indiana and Illinois; but it does not *seem* so cold, because of the dryness of the air, the little amount of snow, and the usually sunny days, the nights, when people are indoors, being generally cold. The diurnal variations in temperature are considerable, and quite regular, the difference between that at 2 P. M. and that at 7 A. M. or 9 P. M. averaging fifteen to twenty degrees.

Weather report for 1873, by Lieut. H. Fenton, at Denver:

	Temperature.			Rain and Melted Snow.
Months.	Highest.	Lowest.	Mean.	
January	62	—17	30	.13
February	60	3	30	.24
March	75	11	40	.22
April	81	10	40	2.43
May	84	27	63	.75
June	99	48	71	2.24
July	99	42	71	2.00
August	96	50	71	1.41
September	90	28	60	.89
October	86	1	45	.73
November	71	—1	41	.16
December	59	—5	22	.53
Mean for the year.	99	—17	48	11.73

The diseases prevalent in and probably incident to great altitudes, in winter, seem to be catarrh (which annoys many new comers), rheumatism and bronchitis.

The change of residence from lowlands to this airy region is of such a nature that an accurate knowledge of the character and varying influences of this climate is of special importance to those suffering with disease of the respiratory or circulatory organs. This will be evident to any one who will impartially study the results of residence here of various classes of invalids, *especially consumptives;* and thus it appears that a more careful discrimination should be made than has hitherto obtained as to who should and who should not resort to this climate and altitude.

From what I have written above as to the *mechanical* effect of altitude, it would appear, on reflection, that this element might prove injurious as well as, and if not, beneficial; that to some, who hardly had lung surface enough to get a fair amount of oxygen below, the rarefied atmosphere of even the lower portions of Colorado might not be the most appropriate. If the evidence of *probable* deaths from *altitude* were needed to substantiate this statement, it could be given. Among others, the case of John C. Heenan, the pugilist, would seem to be interesting in this connection. Once he received a blow on the left side of the upper part of his chest, from the effects of which he never wholly recovered. In Colorado, he had an attack of hæmorrhage. After a while, apparently in pretty good condition, he started for Southern California. He is said to have died of hæmorrhage, in the cars, at one of the highest points on the Union Pacific railroad.

Those who have never visited our mountain region (ranging as it does from six to fourteen thousand feet above the sea), in advising their patients *to go up into the mountains in Colorado, and have a good time,* would seem to act unadvisedly, in view of the hæmorrhages and other drawbacks such a course is said to have entailed.

Generally speaking, patients, on coming here, do well to take life easy for a while, till they get somewhat acclimated; not to allow the buoyancy and exhilaration of this light air to deceive them into too great confidence in their powers of endurance, till the circulation and respiration get used to the change.

As to this immediate vicinity (our personal experience has not yet extended farther in Colorado), when we think of the multitude who are insidiously gliding into confirmed phthisis in low, damp homes in the States, who could have almost certainly been restored to health; and of the many who come too late to be benefited *here*, to be hastened to their graves, or sent back East, disappointed, the words of Burns seem appropriate:

> "It's hardly in a body's power
> To keep, at times, frae bein' sour,
> To see how things are shared."

As March and April are said to be "winter months" here, as well as in many places East, perhaps the time specified above ought to be extended toward May.

Some of the most remarkable instances of the arrest of phthisis have been in those who came up by degrees, in wagons, through Kansas; and it may be that the ratio of deaths, to all deaths from this disease in Colorado, would be very much lessened, if all patients in coming to the lower Rocky Mountain regions resorted to the old-fashioned means of travel by *ox-team* across the Plains.

From personal experience, the effect of the sudden rise coming through Kansas seemed quite decided to one who had had, nearly a year before, pulmonary hæmorrhage, followed by chronic pneumonia, and probably partial closure of some peripheral portions of lung. This was evinced, *at first*, by quite marked increase in the force and rapidity of the heart's action, and increased respiratory activity, with a most disagreeable desire for *more air*. This acceleration of breathing and circulation is followed, shortly after arriving here, by a congested feeling in the chest, with an increased tendency to hæmorrhage for awhile, which, however, passes off with the hurried breathing; and improvement in both weight and muscle continues for several weeks.

As we came up on the Kansas Pacific Railway, over four thousand feet in twenty-four hours, an idea suggested itself that *expiration* decreased proportionately to the increase in altitude, while inspiration remained about the same. This—to me, at least, a discovery, which, in some unexplainable way, as affecting *prolonged* expiration, might, perhaps, have something to do with the arrest of phthisis—led to an invention. It was an instrument to measure the expiratory and inspiratory movements of the chest, as the sphygmograph measures the pulse. The stable portions of the apparatus were to rest on the hips and shoulders, and respiration was to be measured by levers, one end of each lever resting on the chest, and the other on paper moved by clock-work.

It seems that such an instrument might be of much value in the diagnosis, and, perhaps, in the prognosis of phthisis. However, I fear my idea came a little late, for the "Medical and Surgical Reporter" of December 6th, gave a description of a similar instrument, called the stethograph, lately "devised by Dr. F. Riegel."

Much might be written about other conditions besides altitude, which are of special importance to the Medical Profesfession, and invalids recommended to this country, such as temperature, various localities, occupation, social surroundings, home-comforts, etc.; but this the limits of the present article will hardly allow.—*Chicago Medical Examiner.*

ANALYTICAL DEPARTMENT.

"**Qui e nuce nucleum esse vult, frangit nucem.**"—**PLAUTUS.**

ART. I.—SESSION OF THE PARIS ACADEMY OF SCIENCES, May 4, 1874. Translated from the French, by C. S. FENNER, M. D., Louisville, Ky.

Absolute Anæsthesia Produced by an Injection of Chloral Hydrate into the Veins—Immediate Cessation of the Anæsthesia after the Operation by the application of Electric Currents.

CONCLUSIONS.

1. In order to obtain complete anæsthesia by intra-venous injections of chloral, it is necessary to use a solution containing one-third part of chloral.

2. The injection should always be made "by the process of direct puncture without denuding the vein"; it is necessary to avoid, by all means, the denuding of the vessel, to prevent coägulation and phlebitis.

3. The surgeon should proceed slowly, in order to test the predisposition of the patient. When the patient feels that sleep is approaching, it is proof to the surgeon that anæsthesia is about to manifest itself. As soon as sleep is produced, it will be useless to continue the injection; after waiting some minutes there will be found an anæsthetic condition, *such as chloroform never produces.*

4. The operation finished, by the aid of electrical currents the immobility can be instantly made to cease. From the commencement of the operation, the surgeon should have at his command, under his hand, a perfectly-acting galvanic apparatus.

5. If the anæsthesia produced by intra-venous injections of chloral is suited to all surgical operations, it will be found particularly applicable to operations of *long duration*, resections, ovariotomy, etc.—*La Tribune Medicale.*

Experiments on Cough.—Dr. Nothnagel has sought to determine the points of the respiratory apparatus in which direct mechanical irritation produces cough. The irritation of the mucous membrane above the vocal chords, or on their superior surface, gives a negative result, while a violent cough follows the excitation of the mucous membrane situated below the vocal chords, or in their interval. The sensibility of the trachea is less, but on a level with its bifurcation it is as acute as it is in the larynx. After a section of the superior laryngeal nerves, the irritation of the larynx, of the trachea and of its bifurcation produces no effect. The mucous membrane of the bronchial tubes—as shown by an opening in the thoracic parietes—is less sensitive than in the larynx or bifurcation of the trachea. The pulmonary parenchyma appears to be insensible. The irritation of the nervous trunks left intact, or those of their central extremities, after section of the nerves, in no case causes cough. This result is in accord with the physiological fact, that the reflex phenomena answer more easily to the irritation of the terminal branches than to the trunks themselves. —*Extract des Archives de Virchow.*

M. Picard has found a constant relation between the maximum quantity of oxygen that the blood is able to absorb, and the proportion of iron in the same quantity of blood. It is evident, then, that the oxygen is in the same proportion to the iron as it is in the oxide of iron. (Soc de Biol).—*La Tribune Medicale.*

Embalming in Guano.—The vessel Don Juan arrived at Auvers with a cargo of guano, bringing the body of the captain, M. Durand, who was drowned while with a fishing party at Callao. The body, that the crew had buried in the guano, arrived in a perfect state of preservation.—*Ibid.*

M. Langier says that baths of pure oxygen rapidly arrest, at least in certain cases, the progress of gangrene of the extremities.—*Ibid.*

A Case of Opium Cure.—The "Druggist," of London, says that a young lady who had long been accustomed to the use of opium, applied to an eminent physician to make hypodermic injections of morphia. He commenced by making the injections as desired, of morphia and water. By degrees the quantity of morphia was lessened, without her knowledge, until within a few days nothing but pure water was injected. After each injection she would lapse into a quiet sleep, in the same manner as she had been accustomed to do under the actual use of morphia. This treatment was continued for several months, during which time tonics had been used, to strengthen the system and bring about a healthy condition after so long a time under the influence of opium. When he considered it safe to do so, he told her plainly that she had not taken a particle of morphia for several months, and was entirely free from its influence. This statement, of course, was received with intense surprise, as well as unbounded joy. The lady is to-day entirely free from any desire for opium—*Exchange.*

The Doctor's Three Faces.—Euricius Cordus, who died A. D. 1535, doubtless gave the results of his own experience when he described the physician in these Latin verses:

"Tres medicus facies habiet: unam quandro rogatur,
Angelicam; mox est, cum juvat, ipse Deus.
Post ubi curato poscit sua prœmia morbo,
Horridus apparat, terribilisque Satham."

("Three faces wears the doctor; when first sought,
An angel's—and a God's, the cure half wrought;
But when, that cure complete, he seeks his fee,
The devil then looks less terrible than he.")

Pope sang in the same strain, although he was not one of the brotherhood.

"God and the doctor we alike adore,
But only when in danger—not before;
The danger o'er, both are alike requited,
God is forgotten, and the doctor slighted."

—*Exchange.*

Death-rates of Various Cities.—Dr. Charles P. Russell gives a tabulated statement of the mortality of the various States of the Union, from which we borrow the following regarding the death-rates of various cities: The highest death-rate in 1872 was exhibited by Memphis, where the deaths were 46.6 in each 1,000 inhabitants. Other cities followed in this order: Savannah, 39.2; Vicksburg, 36.5; Troy, 34; Hoboken, 32.9; New York, 32.7; Newark, 31.6; New Orleans, 30.6; Roston, 30.5. The rate for Philadelphia was only 26.1; Brooklyn, 28.1; St. Louis, 20.1; Chicago, 27.6; Baltimore, 25.1; Cincinnati, 20.5; San Francisco, 17.2. This compares not unfavorably with the mortality statistics of British cities, where the lowest rate was 21.4; that of London, Bombay, and Calcutta, shows only 26.2 and 25, respectively. The highest known death-rate prevailed in Valparaiso, Chili, 66.9.—*Popular Science Monthly*, February.

On Inflammation of the Thoracic Duct.—Dr. Chouppe, of Paris, has just published a thesis in which he has collected five cases of the above rare and, as yet, not well-known affection. The five cases collected by Dr. Chouppe are the only ones hitherto placed on record. In three of the cases the inflammation was secondary, and in two primary. In order to distinguish this latter from the former, Dr. Chouppe has conducted a series of experiments on animals. The points brought out by the two cases and the author's experiments are very interesting. In both cases the inflamed thoracic duct had thrown a quantty of pus into the general circulation through the subclavian vein, and it might be said that the patients had had a sort of pyæmia through an internal course; yet, during life, typhoid fever, meningitis and articular rheumatism were successively suspected, whilst purulent infection was not even thought of. Another point of interest was the obliteration of the subclavian vein in one of the cases; it could only, however, have occurred during a late period of the disease, as symptoms of pus in the blood had been previously observed. Notwithstanding the great importance of the thoracic canal, as conveying all the chyle produced by digestion, and the most part of lymph, no disturbance in the digestive organs or in the functions of nutrition was observed. Moreover, Dr. Chouppe stated the existence of pulmonary infarctus, caused, according to him, by the pus producing embolisms. The other symptoms were redness of the surface in various parts, inflammation of the sheaths of tendons, and of several joints. In both primary cases the onset of the disease was sudden; in one case it came on with violent pain in the stomach and intense fear; in the other, with a violent and protracted fit of rigor. In the two cases, these symptoms were followed by high fever, prostration, loss of strength and flesh.

Dr. Chouppe has arrived at the following conclusions on the important questions which he has investigated: Primary inflammation of the thoracic duct does exist; it is attended by general symptoms of purulent infection and by local symptoms; it can not be diagnosed as yet during life by the help of known symptoms, but its presence may be suspected: it is likely that it has sometimes been overlooked, and that it occurs occasionally.—*Med. (Canada) Times.*

Division of the Spinal Cord in the Neck.—N. B. Baillie ("Indian Med. Gazette") records the case of a woman who lived for six hours after receiving a blow with a hatchet which cut through the third spinous process and the back part of the fourth cervical vertebra, dividing the spinal cord completely, and penetrating into the body of the vertebra in front of the spinal canal.

The Variola-Varicella Question.—Kaposi ("Archiv. fur Dermat. und Symph.," V. Jahr. Zweites Heft), in a long and important article, in which this much-vexed question is considered, with particular reference to the many points which have been put forward by those who maintain the duality or individuality of the two affections, draws, from all the premises, the conclusion that varicella, as a contagious affection, is identical with variola. In the same number will be found a report in full of a discussion of this question, which occupied several sessions of the Vienna Medical Society.—*Boston Med. and Surg. Jour.*

Rupture of the Heart.—Mr. T. M. Wills reports the case of a man, forty-five years of age, who was knocked down by a cart and was brought to the hospital in a state of collapse. A contused wound, about three inches in diameter, was found on his chest a little to the left of the sternum, and corresponding to the fifth rib, which was fractured. The pulse and apex-beats were imperceptible, the surface cold and clammy, lips and hands blanched, respiration troubled and heaving, and there was slight hæmoptysis. In spite of internal and external stimulation, he grew worse, and died in eight hours after the injury. At the post-mortem examination, the pericardium was found distended with clotted blood, and a careful examination disclosed at the apex of the left auricular appendix a small laceration, partly filled with a clot, which freely admitted the introduction of a blow-pipe to the cavity of the auricle. The walls of the auricular appendix seemed unusually thin, and there was a large deposit of fat on the walls of the heart, which in other respects was normal. The pericardium was not torn by the rib, and the point of injury was far behind the seat of fracture, so that the rupture must have been caused by the violence of the contusion. The fact of the laceration being remote from the main current of blood, the force of which was diminished by the orifice of the auricular appendix, and also by the shock, explains the survival of the man for so long a period after this accident.—*Brit. Med. Jour.*

CLINICAL RECORDS.

"Ex principiis, nascitur probabilitas: ex factis, vero veritas."

ART. I.—INCISED WOUND OF THE KNEE-JOINT, OVER FIVE INCHES IN LENGTH—SEVERING TENDON PATELLÆ AND SCOOPING OUT PORTIONS OF THE ARTICULAR SURFACE OF THE CONDYLES OF THE FEMUR—HEALING WITHOUT SYNOVITIS. By R. F. BALDWIN, M. D., Winchester, Va.

On the 14th of July, 1873, I was requested by Dr. Charles Sydnor, of this county, to repair in haste to the residence of

Mr. Lumpton, a farmer, about eight miles distant, who had received a severe wound by falling upon his scythe in the harvest-field. He gave the following account of the accident:

It seems while cradling his wheat, he stumbled and fell with his whole weight, with his right knee immediately upon the blade of the scythe, which penetrated deeply the joint, and he felt himself badly injured. With great effort he drew himself nearly up by the handle, but finding the point of the blade was impinging upon the left thigh, he was compelled to relax his hold, and he fell again with his full force upon the blade, it entering the same aperture and burying itself to its full depth into the joint, and he felt the edge grating upon the bone. The bent edge and blood upon the blade corroborated this statement.

In my examination, I found the wound a little over five inches in length, immediately in front of the joint, severing completely the tendon patellæ just below its insertion, and scooping out of the condyles of the femur four (4) pieces of bone, two of them small, and I suppose caused by the first fall, two of the pieces several inches in length, which seem to correspond to the breadth of the respective condyles, about half an inch in width and of sufficient depth to show distinctly the osseous texture. These pieces were brought out as I passed my finger through the joint, which was laid completely open.

The patient having been fully informed as to the character and danger attending such an accident, the wound was brought together by three stitches, with a deep hold upon the integuments. A figure of 8 bandage was applied with a broad adhesive plaster, and the limb securely adjusted to a splint which extended from the hip to several inches below the foot. I then proceeded to arrange the bed for a drip (and thorough drainage), when the patient remarked: "Now doctors, if my limb is to be saved, it must be done by ice; and I suggest that a bag be suspended from the joice above, and I will see to the ice being kept in it, and will regulate the drip by *swinging* the lump." This idea was adopted at once, and it made a comfortable drip; a string was tied to the bag, and the patient or his nurses, by gently moving it, could regulate the fall of the water at pleasure. A towel, folded several times, was kept over the joint, so as to moderate the temperature.

Treatment.—Simple enough; *combat inflammation*, and for this purpose his bowels were directed to be freely moved with castor oil, and his diet, iced milk, cold tea, and stale wheat bread; and the cloths immediately over the wound to be kept saturated with this lotion: ℞—Carbolic Acid, ʒii.; Glycerini, ℥iss.; Aquæ, ℥iiss. M.

On the fifth day his pulse was 75 (fifteen over his usual rate), and there was a flush of inflammation over the inner surface of the knee and some puffiness in the cicatrix, and he complained of the lotion burning and smarting when applied; it was reduced one-half its strength. I found he had regulated the drip in accordance with the rise and fall of his fever, and indeed exhibited the most remarkable judgment in the conduct of his case.

On the 10th, to guard against excoriation, a posterior splint was substituted by his family physician, Dr. Hite Baldwin, who was absent at the time of the accident, but became associated with me in the case upon his return. On the eighteenth day, the wound having closed, the drip was removed and a simple bandage applied.

When I examined the leg in October, I found the patella rides nearly an inch above its proper site, and he says when walking down hill the knee is inclined to give way, but in every other respect he has perfect use of the joint, and is still actively engaged in hard farm work.

ART. II.—LIPOMA OF THE AXILLA. By EDW. VON DONHOFF, M. D., Louisville, Ky.

The seeming rarity which marks the occurrence of lipoma in the axilla, together with the interest which always attaches to an operation in this situation, induces me to submit the following case:

Billroth, in his masterly work on "Surgical Pathology," says of the appearance of lipoma in serous cavities and about the synovial membranes of joints: "In the synovial folds and tufts of joints, as well as in the sheaths of the tendons, there *may* be an abnormal development of fat, so that the fatty masses may seem branched like a tree (lipoma arborescens—J. Müller); this is an analogy to the fatty proliferation in the processes of peritoneum of the colon (appendices epiploicæ) and other serous membranes, *but it is exceedingly rare.*"

CASE.—About eight weeks ago I was consulted by Alice Clay (colored), regarding a tumor situate in the left axilla; which, she stated, had first made its appearance two years ago. For some time previous to her visit she had suffered considerable inconvenience, pain and paralysis of the arm. Upon examination, I found a large tumor, of an elastic consistency, and slightly movable. The woman had never had any enlargement elsewhere on the body of any nature; thus excluding what I had first suspected the growth of being, i. e., a gland which had undergone fatty degeneration, or carcinomatous infection, [the latter probability was the more certainly excluded by the entire absence of pain up to the time when the tumor had attained a sufficient size to exert noticeable pressure on the neighboring nerve plexus.]

The skin over the growth was somewhat browned, and when grasped between the fingers and raised, presented the usual dimpled appearance characteristic of lipoma, consequent upon the adhesions existing between the fibrous capsule of the tumor and it. Pressure elicited the crackling resulting from the compression of the individual fat lobules of the growth.

Having confirmed my diagnosis as to the nature of the tumor, I proposed an operation for its removal, not omitting to represent the dangerous character of the undertaking. She, however, consented, and I operated, assisted by Drs. Talbot Owen, and John T. Williams.

The operation was done in the usual way, as regards the preliminary steps; though as we proceeded, we were met by such impediments as might be expected in this region. The growth was attached high up in the very apex of the space; and embedded in it were the axillary plexus of veins, nerves and arteries. In dissecting away the tumor from its unpleasantly close neighbor, the axillary artery, it became necessary to cut a small branch running from it to the growth; I did so, but so closely that it was found impossible to ligate it. The stroke of the knife which severed the vessel also severed the tumor from its attachments, so that we had ample space for the application of a large lump of ice, by which means the hæmorrhage was completely checked.

Sutures were now introduced, preparatory to closing the wound when it should be deemed compatible with the safety of the patient. Three hours afterwards no hæmorrhage occurred; the wound was closed, and a wedge-shaped compress, supported by a Spica bandage, was applied. Administered one-fourth of a grain of morphia and fifteen grains of chloral, and left her. Two hours afterwards she was free of pain and comfortable. The next day found temperature normal, that she had rested well during the night, was free from pain, and that no hæmorrhage had recurred. The badage was left as applied, and not removed by Dr. Williams (who conducted the after-treatment during my absence from the city) for some days afterwards. The wound healed by granulation, but, contrary to our forebodings, discharged very little pus; so little as to soil but slightly the pieces of lint which were applied. No topical applications were made.

I have seen and examined the woman closely lately, and found the arm perfectly restored to its normal usefulness, and her general health much improved. The weight of the tumor was eleven ounces.

ORIGINAL CORRESPONDENCE.

"Sit mihi Fas scribere audita."

DENVER, COL., May 15, 1874.

Dr. Lewis Rogers, Louisville, Ky.:

Dear Sir,—I have received and read with interest your article (read before the Kentucky State Medical Society) published in the "Courier-Journal"; in the "Practitioner," and now in pamphlet form, "On Climate in Pulmonary Consumption, and California as a Health Resort." I, in common with most physicians, agree very fully with you as to the uselessness and folly of allowing a certain class of consumptive patients to leave their homes; and I am glad therefore that you permitted these publications of your paper, for on account of your reputation and the general soundness of the views expressed, doubtless many invalids who might otherwise go to that region, to meet with disappointment and death in the end, will be influenced to remain at home, and thus live longer and more comfortably.

I am sorry you did not visit Colorado whilst you were in this western country, for I think your views would have been more favorable as to our climate. You say to the invalids that they can, if they choose, visit Denver, Salt Lake, and Nevada City by a "dètour." My dear sir, Denver is the point that the invalids should seek, and they might as a dètour visit San Francisco, San Diego, San José, and other places in California.

Whilst I agree fully with you in your opinions as to the classes of patients that came more particularly under your notice in California, I suspect that the cases mentioned in your paper of the lady from Boston, the hectic and emaciated patient from one of the eastern cities, and other similar hopeless cases of the kind met with on the way from Omaha to San Francisco, impressed you too unfavorably as to the sufferings and distress among the invalids who come out here. I can well understand that on such a very brief visit as you made, your attention would be attracted by the most marked and distressing cases only; and that the very large majority of cases, those of the mild and incipient class, would, almost entirely, escape your attention, unless you were to visit the farming districts of these countries, where most of the invalids are to be found. Such was, in great measure, my own experience when I first came to Denver, two years and a half ago. The deaths among the class of consumptives in whom the disease was far advanced was, at that time, so appalling that one making as brief a visit as yours, and to large cities only, could hardly have failed to receive the impressions that were produced upon you, and so truthfully described in your paper. But, my dear sir, whilst I know that under your skillful treatment in Kentucky, and like skillful treatment of other physicians in the States, a few consumptives may recover, I do also know that a much larger proportion of consumptives get well in Colorado than in any of the States of the Union. I have, as you know, practiced medicine more than sixteen years in Kentucky, and I have there seen very, very few consumptives cured; but in two years and a half in Denver, I have seen many who seem to have entirely recovered. Not all or even very many of these patients were, it is true, treated or examined by physicians here, and you might, therefore, suspect that many of these were not consuptives at all; but this can hardly be so, for these persons were sent to this country by the physicians of the East, many of whom are as skillful and reliable in diagnosis as the Denver physicians.

Few invalids, I imagine, would leave their homes and come to this far off country without first consulting the most eminent physicians in their localities. If such patients are not sure that their own family physician is most skillful, they will consult other physicians in their locality who are esteemed eminent. *It is true then to say that Colorado is full of men and women who have been sent here, by the most eminent practitioners of the States, with consumption, and are now apparently in good health, and who do not themselves doubt that they have been cured of* *consumption by the climate alone.* You see, then, that my experience leads me to a different conclusion from your own, which, you say, is to the effect that fewer recoveries occur among those who have changed their place of residence, than among those who have remained at home.

You say that travel and change of climate may, under proper and favorable circumstances, be of the greatest advantage to consumptives. This is true, no doubt, of nearly all other chronic diseases. Your objections to change of residence are well stated; the uncertainty in the weather, which may happen to be bad at the wrong time; the food, which may be bad or too expensive to be procured by some; home-sickness, etc. *But the question may be thus stated. Do patients improve and get well in spite of these disadvantages? In Colorado they do.* Our living in Colorado is not as comfortable or cheap as in most of the States and older cities, and invalids who have been accustomed all their lives to the most comfortable living, and who have been made very great lovers of home by the extraordinary comforts and conveniences generally found there, might alight upon places in this western country where they would find the want of very delicious food and the highly comfortable accommodations of their own homes, and such persons might become home-sick; but the large majority of consumptives and other invalids here are not of this affluent and comfortable class, and even the few of this kind can live very sumptuously in Denver, if, as you suggest, they have the means to pay for such living. The others can make themselves just as comfortable here as they were at home, and at about as little expense. Lack of wealth and lack of the ease and comfort that wealth affords, have made this other class, by far the larger, less susceptible to that sentimental emotion called home-sickness.

I agree with you that it will be a great step gained, when we can foretell what kind of season we are to have, which of the four seasons is the best, which of the various popular resorts is the best for the particular case, which are the cases that will get on best at home and which abroad. But if the physicians send none from home nor suffer them to go, we will, you see, be a long time in acquiring reliable information in these matters. The reputation of this western country has already been greatly injured by *keeping consumptives fatally at home, until all hopes of effecting a cure are gone, and then sending them out here to die.* As many patients long ill will die here, as in the States; they will all die the sooner by being sent from home; *but a very large proportion of those who have only the predisposition, or who have the disease in its very early stages, will be saved.* This I think you would be convinced of, after a more extended observation among the less severe or extreme cases, than those unfortunates whom you saw on your trip to California last fall. I am not, I think, too enthusiastic in admiration of this country and climate. I know that too much has been claimed for the climate; *but I could not, with all the cases of recovery that are before me, agree with you in your expression, that "more recoveries have been observed among those who did not change their place of residence than in those who did";* unless you restrict this saying to the advanced and hopeless cases, of course to be left out any count, since they will nearly all die whether kept at home or sent abroad.

As to the diet out here, it is a fact that could be attested by every one visiting this country, that the invalids of whatever class begin at once to improve in nutrition, strength and general health. In my own case, I had in a few months gained more than thirty pounds in weight, and that too before my asthma was much relieved. Like you, I was inclined to complain of the food; but the truth as to the diet out here is, I suspect, simply that it is not like that you and I have been accustomed to; it is more on the Eastern than Southern style. Still it is pretty good diet after all, and most of us fatten on it.

My opinion is, that one of the most important advantages this locality has over many others, is the entire freedom of the atmosphere from anything like marsh miasm, that depressing, poisonous agent that hangs over and around the cities and other localities of the East, West and South. Next in importance to this purity of the atmosphere, is the delightfully cool nights throughout the summer, allowing the most perfect repose and most refreshing sleep. The scenery of mountains and plains, the bright sunshine, of which you have heard so much, the activity in business, the energetic, earnest, hopeful conversation and manners of the people, all lend their power. Intelligent physicians ascribe the greatest power in the cure of consumption, asthma, chronic hepatization or solidification of the lungs, and some other affections, to the stimulating power of the air that is breathed. The air in this region being less dense, contains, of course, less oxygen. More of it must, therefore, be taken into the lungs, and this is accomplished by breathing faster or fuller. Invalids recently arrived breathe more rapidly, but when the lungs have had time to expand, the breathing is more full, but in either case the lungs are stimulated. It is suggested that my asthma has been cured by this sort of stimulation, kept up for the first year or so of my residence here. No doubt there is a great deal of truth in this theory. That a larger number of the consumptives here have hæmorrhages from the lungs, and that a larger proportion die of hæmoptysis, is a fact that is noticed by all of us, and is accounted for by the expansion and stimulation alluded to. This increased tendency to hæmorrhages lasts, however, for but a short time; for if the tendency is very marked, the patients soon die, and if not very strong, they get over it.

You say you have sent patients to Florida, Minnesota and other health resorts, and that with few exceptions the results have not been satisfactory. My dear sir, this must be the case for a while. The success in curing consumption in Colorado is not satisfactory; too many of the patients die. We must not expect too much from any treatment or climate. If we can take the most favorable cases of this dreadful disease, and under the most favorable circumstances of treatment and climate reduce, even in a small degree the mortality, we must, for the present, be content with this. What is claimed for Colorado is, that a larger proportion of the invalids that can be cured will get well quicker here, than at their homes in any other part of the continent.

The large majority of the patients that are sent to travel, or that go traveling, have started too late; they ought to have stayed at home. The rapid cases, cases of inflammatory origin, ought, most of them, to remain at home or go in winter to Florida, where, on account of the warm and uniform temperature of the air, the lungs will be soothed and quieted, and where the poor invalid may hope to arrest his hæmorrhages and live a little while longer; but where the consumption discloses itself in the form of an inherited diathesis, and where it goes on more slowly to disorganization of the lungs, and where, by a fuller expansion and stimulation of these organs, there is a hope of making them more healthy, those cases ought, in my opinion, to be sent to Colorado, and sent early; not after the physician at home has become satisfied that the patient will die, unless some change of climate will cure him; but let them come early to Colorado, and a much larger proportion of them will recover than by being kept at their homes, and the same locality, too, where the disease has already developed itself and started out on its course—a course that in Kentucky and other States East and South—too surely and rapidly leads on to death.

Very sincerely yours, W. H. Newman, M. D.

Note.—The appearance of this letter here requires, for the general Public, some explanation. Dr. Lewis Rogers read before the Kentucky State Medical Society a paper on the subject mentioned in Dr. Newman's letter. This paper, with others read before the Society, was referred to the Publishing Committee of the Society. It will appear in the Society's Transactions. Pending their publication, the paper of Dr. Rogers was published, as all ethical physicians regretted, in the "Courier-Journal" (a daily newspaper of this city); in the "American Practitioner," and in pamphlet form. What may be the propriety of thus publishing a paper which became, after the disposition made of it by the Society, the Society's property, each reader can, for himself determine. It was in this way that prior to the publication of the Society's Transactions, Dr. Newman had an opportunity of reading it. Believing that the teaching incorporated in the paper of Dr. Rogers to be unwise, unsafe and contrary to the testimony of the best authorities either in America or Europe, Dr. Newman sent his "letter" to Dr. Rogers, requesting that it be published either in the "Courier-Journal" or the "American Practitioner." As this proved to be impracticable, he sent his letter to the "Richmond and Louisville Medical Journal," wherein it is published, with this necessary explanation.—Ed.

Dr. Frank Hamilton Vindicates Himself.

To the Commissioners of Public Charities and Correction:

Gentlemen,—My attention has just been called to a communication made to your Board, April 20, by one of its members, Commissioner Stern, and published in the "City Record" of April 27, and also in the "Evening Post," relating to myself and the Reception Hospitals, which communication contains errors of statement as to facts of sufficient importance to demand correction. Mr. Stern says, speaking particularly of the Park Hospital, "the number and gravity of the surgical cases that come within the scope, demand for it the most careful and intelligent attention. Appreciating the importance of the position, the Board of Commissioners changed the jurisdiction of the Medical Board of Bellevue Hospital, and appointed one of its members as Surgeon-in-Chief, who, from his eminent talent, is well qualified for the position, but who, from the various distinguished posts he occupies and the extensive private practice he enjoys, can not, for want of time, pay that constant supervision and personal attention to the Reception Hospitals as the interest of the public and their welfare requires."

In reply, I wish to say, that I was appointed to essentially the same office which I now hold in November, 1872, I believe before Mr. Stern was a Commissioner, and the reason assigned by the gentleman who called upon me to ask whether I would accept the position was, that great difficulty had been experienced in finding a surgeon to answer promptly the calls of the Resident Physician, and it was thought necessary to appoint one person who should hold himself responsible whenever called. I was assured that I would not be expected to make more than about one visit per week to the hospitals (these hospitals are six miles apart), but that a summons would be expected to be answered promptly. I was also requested to suggest, from time to time, such alterations in their management as their condition might seem to me to demand.

At first my duties were supplementary to those of the Bellevue Surgeons, but subsequently the duty of acting as consulting and visiting Surgeon was devolved upon me.

I have already informed you how I have performed my duties as a consulting officer, having responded promptly to every summons. Before the appointment of Dr. Fluhrer to the place of Resident Physician at the Park Hospital, I was frequently summoned to this Hospital, and during my entire term of service a large portion of my visits to the Ninety-ninth Street Hospital were in response to calls. I have even denied myself my usual summer vacation in order that I might attend faithfully to this public duty.

Mr. Stern says that I performed no operations at the Park Hospital during the year of Dr. Fluhrer's service as Resident Physician, and was present at but two, and he adds that the infrequency of my visits admits of but two explanations, either confidence in Dr. Fluhrer or want of time. I will suggest another reason. During the year of Dr. Fluhrer's service he has summoned me but three or four times, and most of the nine amputations as well as other capital operations made by him, were made without my knowledge. I have more than once called his attention to this omission to summon me in these and other cases requiring capital operations, including a case of strangulated hernia, in some of which, at least, there was ample time for consultation. With one or two exceptions, my presence during his operations was accidental. I made an amputation of the thigh on the 4th of April, and Dr. Fluhrer made one on the 21st; both patients died.

Mr. Stern compares the number of visits made by me to the Park Hospital during the year 1873 with those made by the Bellevue Hospital surgeons in 1872, and finds a difference of eighteen in favor of the latter, but he has omitted to make a similar comparison in relation to the Ninety-ninth Street Hospital. Up to April 1, 1873, only eleven visits are recorded, and five of these were made by myself, while in 1873 I made fifty-one (51) visits to the Ninety-ninth Street Hospital, and seventy-one (71) to the Park, in all, one hundred and twenty-two (122).

The comparison of the results of operations in the two reception hospitals does great injustice to the able gentlemen who have been in charge of the Ninety-ninth Street Hospital. Situated in a neighborhood where large public works are in progress, and where serious accidents from blasting and the removal of heavy stones are of frequent occurrence, the nature of the accidents has been constantly of the gravest character.

An examination of the records will show that eight amputations were made at the Ninety-ninth Street Hospital, and nine at the Park. All of the amputations made at Ninety-ninth Street were in the lower extremities; four recovered and four died; of those who died two (2) are reported in the books as having died of pyæmia, but I think one of them is recorded erroneously, and was probably septicæmia. No other cases of death from pyæmia are on record for that year. Of the nine (9) amputations at the Park Hospital, four (4) belonged to the upper extremities and five to the lower. Of the upper extremity amputations, three out of four recovered; of the lower extremity, two out of five (5) recovered. Surgeons understand that this difference as to fatality always exists between the two extremities, and the record in this point of view is as favorable for the Ninety-ninth Street as for the Park; but in so small a number of cases this may be merely accidental. Certainly, the results furnish no evidence of the better management in the Park than in the Ninety-ninth Street.

Mr. Stern says, pyæmia is stamped out at the Park, and that it continues a frequent cause of death at Ninety-ninth Street.

The records show one death from pyæmia at the Park, but as this was on the seventh day after Dr. Fluhrer took charge, he perhaps can not be properly held responsible for the result; and only two from the same cause at Ninety-ninth street. But pyæmia is not peculiar to hospitals. Mr. Hewitt, of London, has recently reported twenty-three cases in private practice, and every surgeon meets with it occasionally in the best ventilated and best constructed houses.

It is said in the communication referred to, that "there is another strong reason why a competent supervising surgeon should be engaged at the Reception Hospitals besides the present Surgeon-in-Chief. The latter is one of the leading members of the Bellevue Medical Board, and it has often been insinuated that great prejudice exists in favor of Bellevue Hospital, and that thereby its members are liable to abuse the power of transfer of patients, and use the Reception Hospitals as feeders to clinics, transporting the greatest surgical injuries to a distant amphitheatre of operations."

Mr. Stern has never heard from any source such a charge made against me. I am conscious of a reputation above such a slander, and my years of faithful service under the Commissioners of Public Charities and Correction, without compensation, should have saved me from so unjust an insinuation. So far as I know, during my term of service, the only instance in which a patient was sent to Bellevue for a clinic, was in the case of a patient with two broken thighs, sent to Bellevue clinic by Dr. Fluhrer for the purpose of showing a mode of dressing devised by himself. This was done without my knowledge or approval.

Mr. Stern says: "The last nomination by the Surgeon-in-Chief of the Park Hospital Staff was unfortunate, and was not done by concurrence, for all the appointments were made without examination, two of which have subsequently been rejected by an Examining Board as incompetent to hold their positions." I do not understand what is meant by the statement that my nomination "was not done by concurrence;" but as it is evidently intended to make me responsible for improper appointments, I reply that Mr. Stern knows that I first suggested and have constantly urged the necessity of competitive examination, and that your Board, and not myself, is responsible for the omission. I was required by you, however, to nominate, and I nominated the two gentlemen you mention, with others, all of whom were graduates in medicine. You decided subsequently that they should undergo an examination. Drs. Early and Campbell were examined, and recommended by the Examining Board, and you appointed them. Of the two gentlemen said to have been rejected as incompetent by the Board, one did not come forward, as he was at the time on leave of absence in Kentucky. He was not, therefore declared incompetent. The other had served at Charity Hospital, and as an ambulance surgeon under your Board for more than a year satisfactorily, and with his appointment I had nothing to do, but his advancement as a faithful officer I recommended when you insisted upon nominations. He was not declared by the ExaminingBoard (of which I was chairman) as incompetent to hold his position. He was subjected to a competitive examination for promotion, and failed to win. Nor is this surprising, when it is known that his competitors numbered about eighteen ; that they were composed of choice men, fresh from the three leading medical schools of the city, while the gentleman referred to had been more than a year out of his studies, and had but two days' notice that an examination would be required. It is no evidence of his lack of qualification or that he was incompetent for the place he occupied, that he was distanced in a race so unequal. Such are the facts upon which Mr. Stern bases the statement that my nominations were "unfortunate."

You will pardon me, gentlemen, for having occupied your time with this long communication; but I was entrusted by you with certain duties which I have striven to perform in the spirit and letter of your wishes, and the character of Mr. Stern's communication seemed to render a full and complete statement of the facts relating to my administration necessary.

Very respectfully yours,
FRANK H. HAMILTON,
Surgeon-in-Chief
Reception Hospital.

NEW YORK, 1874.

I wish to add that the number of cases of pyæmia during any one year either at the Ninety-ninth Street or Park Hospital has not been sufficient to imply that it was spread by infection, unless I except the year 1871, during which there were 4 cases in the Park Hospital. In 1870 there was 1 in the Park Hospital; in 1871 there were 4; in 1872 there were 2, and in 1873 there was 1. Considering the larger number of severe cases received during the several years, it is quite probable they were all spontaneous, and not due to infection. I have never seen any evidence that cases had originated from the latter source in either of the two hospitals. F. H. H.

MOBILE, ALA., May 26, 1874.

To Paul F. Eve, Nashville, Tenn.:

Dear Doctor,—I am truly flattered and obliged for your kind note of the 22d, and cheerfully reply. In the May number of the "American Journal of Obstetrics" you will find the case referred to reported—extirpation of kidney. You will also find a résumé of the report in "Hay's Journal" for January, 1873. The woman is still living. She gave birth to the child, with which she was pregnant, at the time of the operation, at full term, without inconvenience, notwithstanding she had some œdema of the lower extremities and highly albuminous urine the last month of her gestation.

In the December number of the "New York Medical Journal" for 1870, you will find the report of an extirpation of the entire tongue, taken from the Alabama State Transactions for that year. I have, in three other instances, removed the tongue, as recommended by Paget, without division of the symphysis.

I have one case of normal ovariotomy which I will report shortly. In the "New Orleans Journal" of November, there is a report of a case of vaginal ovariotomy that I did in Jackson, Tennessee, there being but one other case on record, that of Dr. T. G. Thomas.* This constitutes the most novel of my contributions to surgery.

My normal ovariotomy was done last January, one year ago, and died last September of yellow fever. She, however, never recovered from the operation. I am convinced that the operation should not be repeated, unless there is so much atrophy of the uterus that the restoration of its functions is impossible, and the accompanying symptoms most seriously threaten life; for, to my mind, the double ovariotomies sufficiently establish the fact, that the ovaries are not the source of the menstrual irritation, but that the uterus is a secreting organ, and the menstrual flux a secretion. Should a female be unsexed before the establishment of this function, doubtless the uterus would remain undeveloped, and the flow would never appear. I noticed this when a boy in spaying bitches. A bitch spayed before œstruation, never craved the approaches of the dog; but after the function was established, if the operation was performed, they became nuisances to the whole neighborhood by their insatiable desire for the opposite sex.

Whilst writing, I will mention a subject that has interested me very much—viz., trephining for epilepsy.

I read with interest the report of a case made by you in Dr.

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* Dr. J. M. Briggs, of Bowling Green, Kentucky, has priority in this operation.—E.

Gaillard's "Richmond and Louisville Medical Journal." Since the war I have trephined five cases, with three cures and two deaths. In the three successful cases, there was no loss of substance of the brain at the time of the injury. The two fatal cases had lost some brain substance, and the removal of the button exhibited on its inner surface the spur exostosis and perforation of the membrane, as described in your case. I saw Prof. Gross operate in his clinics upon exactly a parallel case; and the manner of death in both my cases was precisely the same as that in his case, which he has published in his Treatise on Surgery. I think the internal growth in my cases was from a partial detachment of the inner table, this being partially detached, yet retaining sufficient circulation to preserve its vitality and keep patulous the opening through the meninges. I believe that the growth was from a piece of the internal table, because this portion of the depressed bone was absent, and no bone had been removed at the time of the injury, or had become detached during the healing. Dudley's third case, reported in the first number of the "Transylvania Journal of Medicine," contains one similar to ours. He was more fortunate, however, than we have been, for he saved his patient. In the "American Journal of Medical Science"—Hays'—the January number, 1860, is the report of an operation for the cure of epilepsy, by Dr. H. P. Yeates, of Baltimore, with a wood cut of a button with an internal growth. He does not say in his report whether the meninges were opened or not, and whether or not there was any loss of cerebro-spinal fluid. Yet from the appearance of the cut I think his must have been such a case as ours. I am anxious to get all the experience I can upon this subject; for I believe trephining, when carefully executed, with the meninges intact, is an operation that can be undertaken with great confidence of success; yet, when there has been a loss of brain, and the patient has recovered from the injury, I am doubtful whether or not the operation can be wisely undertaken.

Since writing the foregoing, I have had the kidney case hunted up. She has just left my office. Her name is Betty Crawfoed. Her health is perfect. She has borne two children since the operation. The first already mentioned, and the second in December last. The last child died of trismus.

About a month ago I had a case of tetanus following the removal of a small tumor near the tip of the tongue in its under surface, and on the third day of the attack, death being threatened by asphyxia from tetanic spasm of the muscle of the glottis, I did laryngo-tracheotomy with the effect of prolonging her life for two days, to die of asthenia. Had I this case in hand again, I would push the operation further, and do an œsophagotomy, pass an India-rubber tube through the incision into the opening into the œsophagus, thus commanding the stomach for the introduction of food, with less irritation to the nervous system than it could possibly be done through the mouth or nares. Had I not been so averse to scribbling, I could have claimed priority in operating for recto-vaginal fistula through the rectum. It was in the summer of 1869 that I operated on a negro girl, a patient of Dr. Sherrard's, by this method. There was complete destruction of the anterior and posterior walls of the vagina and corresponding portions of the bladder and rectum. The operation was executed upon the rectum some four months after the parturition that caused the injury, with the effect of almost closing the recto-vaginal opening; and before another operation could be undertaken, the patient succumbed to an intercurrent attack of pneumonia. I could, however, easily establish my claim to priority, for Dr. Sherrard, who is still in the city, and a respectable practitioner, and others—medical students, whose names I have forgotten—were present.

I am glad to make this communication to you, appreciating your long and valuable services to the science and art of surgery, and it is quite fitting that you should write such a paper, being the only remaining one of the great trio of the South-west—Stone, Nott and yourself—that bridges over the link from the days of Dudley and McDowell to the present time.

But I find I have written you a long letter, and fear that I have wearied your patience.

I take the liberty of enclosing you a memorandum of Dr. Nott's contributions, which I happen to have on hand.

Yours truly, J. T. GILMORE, M. D.

HAS QUININE ANY POWER TO AROUSE UTERINE CONTRACTIONS?

LAGRANGE, KY., May 8, 1874

Dr. E. S. Gaillard:

Dear Sir,—Within the last fifteen years we have seen frequent communications in different medical journals calling attention to the action of quinine upon the uterus. Those communications seem to have been based upon *observations of facts* at the *bedside,* and not upon mere theory; for, indeed, there was no theory upon the subject, and we, therefore, would presume that nothing short of actual observation could have called forth such comments. Notwithstanding the facts in favor of the power of quinine in producing contraction of the uterus, the Profession are, as a mass, far from believing that this drug has any such power over the uterus. The belief amongst the Profession seems to be, that if quinine has any such effect upon the uterus, it is through its *tonic effects* upon the nervous system at large, as any other active tonic may have. Be this as it may, we have, within a few years past, observed most decided results from the use of quinine in cases where the powers of the uterus had flagged during labor, or had entirely been suspended. We recollect distinctly to have been called to attend a lady in labor, in the winter of 1855, in which case, after labor had progressed *tardily and feebly* for several hours, the pains finally ceased, and the patient passed into a sleep, which lasted for four or five hours. She finally awoke, but the labor seemed to be quite suspended.

Finding the system relaxed and the pulse feeble, I concluded to give her some quinine for its general tonic effects. I gave her five grains at once, and in two hours I gave her a second dose of the same size, making, in all, ten grains. To my surprise and great gratification, within an hour of the second dose, active labor set in and progressed vigorously for another hour, when she was delivered. This case made a deep impression upon my mind in reference to the effects of the quinine in renewing the uterine activity, and I mentioned the case to some of my neighboring doctors.

In the spring of 1872, I was called to see a lady, who had arrived at her full term of gestation, and who had given birth to some five or six children previously, without any delay or difficulty in either case. At this time, however, she had been suffering from symptoms of approaching labor for two weeks. She had been having slight pains, off and on, for that length of time, and, as a consequence, had become greatly wearied in body and mind, especially as she and her friends had become fearful that something wrong had taken place. I was finally called in to examine into the case and to solve the difficulty. I found the os uteri relaxed, her skin and extremities cool, her pulse feeble, and about sixty-five per minute. There were really no pains or other symptoms of labor. I decided at once to try the effects of quinine in this case, feeling assured that all her symptoms called for it. I gave her two doses, one hour apart, of six grains each, and to the delight of her husband and friends, who were watching the case with great interest, *labor* pains were aroused within two hours, and in one hour's time thereafter, she was safely delivered, and everything passed off most satisfactorily.

During the past winter, it was my lot to be called to attend several cases of *labor* in this town and vicinity; and, singular enough, about *four* out of every five of those cases were of the above character—feeble, relaxed in system, and attended with very slow and inefficient pains for several days before I was called in.

In each case I commenced by the use of quinine in efficient doses, frequently repeated, which, in every case, aroused the uterus to active labor in two or three hours, and the labor was thus terminated with dispatch and safety to mother and child.

And now for the last case that has fallen under my observation in regard to the power of quinine in arousing uterine pains. Within the last three weeks I was called upon to prescribe for a lady patient for neuralgia of the face. She was some three months advanced in pregnancy. She had suffered no symptoms whatever of uterine disturbance up to that time. I gave her five grains of quinine for the neuralgia, and intended to give as much more in two hours, but in less time than that, she commenced suffering considerable uterine pains, so much so, in fact, that I had to advise her to lie down and be quiet till the symptoms passed off, which she did.

Now, I have merely jotted down these facts and observations for the benefit of my professional brethren everywhere. Whether these facts point to any specific action of quinine upon the uterine fibres or not, they are certainly worth mention, and point to a very safe and satisfactory mode of treatment of cases like those mentioned above. I do not pretend to say that quinine acts upon the uterus as does ergot, yet there is certainly a *faint resemblance* between their effects upon this organ. I submit these observations for what they may be worth, and trust others of the Profession may come forward and favor us with their observations on this subject, if any they have.

Very truly and respectfully,

N. B. WELLS, M. D.

BALTIMORE, MD., May 2, 1874.

Professor E. S. Gaillard,

Editor Richmond and Louisville Med. Jour.:

Dear Sir,—I send you the history of a case of strychnia poisoning which came under my observation some months ago. The case is interesting from the large quantity of strychnia taken under circumstances most favorable for its rapid absorption, and for the typical array of symptoms. Death resulted so rapidly that treatment could not be tried, and if the remedies could have been obtained in time, would there have been any chance (owing to the quantity of strychnia swallowed) of any favorable results from their use?

A young man, an American, aged twenty-eight, carried home on the night of —, 1874, a paper containing from twenty to thirty grains of strychnia for suicidal purposes, that poison being kept in large quantities at his place of business and used to destroy rats. On the morning of the next day, while his room-mate was at breakfast, he arose, emptied the poison into a glass of water, swallowed it, and returned to bed; on the return of his companion to the room, about fifteen minutes after, he was found in strong convulsions. I saw him a few minutes after (probably twenty minutes after taking the poison); he was then in a strong convulsion, his face was turgid, of a leaden hue, the pupils greatly contracted, contraction of the limbs with tetanic spasms, the eyes distorted, in fact every muscle of the body at times rigid. The pulse was rapid and weak, the temperature was not taken with the thermometer, but the skin was cool. The spasmodic contraction of the muscles of the chest caused difficult, and eventually suspended respiration; shortly after I saw him, the convulsion partially left him; he was perfectly rational, his mind clear. He complained of his throat, difficulty in swallowing; said that it would bring on spasms if he attempted it; also of pains running down his legs; he was unable to move his body, said he was paralyzed. On attempting to swallow a little brandy and water he suffered with spasm of the throat. There was excessive hyperæsthesia. He desired a friend to move his leg from beneath the other; when this was attempted he screamed and suffered with spasm. On placing my hand on his abdomen, which was hard and rigid, he was thrown by a tetanic spasm to the other side of the bed. He begged that no one would touch him or come near him, and even desired his friends not to talk, as it caused him pain.

Being satisfied from the symptoms and his own acknowledgment that he was poisoned with strychnia, I sent for chloral hydrate, intending to try the effect of that remedy, but just after the messenger returned the spasms recurred with extreme violence, and he expired; death evidently caused by tetanic spasm of the respiratory muscles. From our calculation, it was not one hour from the time of his swallowing the strychnia before death resulted. Very truly, etc.,

George G. Brewer, M. D.

PROCEEDINGS OF SOCIETIES.

"Etsi non prosunt singula, juncta juvant."

Meeting of the American Medical Association.

Detroit, Mich., June 2, 1874.

The American Medical Association convened at Hough's Detroit Theater at 11½ o'clock, Dr. Toner, the President in the chair.

The exercises were opened with prayer by Bishop McKoskry.

William Brodie, M. D., then read an excellent address of welcome.

At the conclusion of the address, Dr. Brodie, for the Committee of Arrangements, announced the programme of arrangements.

Dr. Brodie, of the Committee of Arrangements, announced that invitations had been extended to prominent members of the Medical Profession in the Dominion of Canada to attend this meeting, and moved that the following be admitted to seats: Prof. Richardson, Toronto; Dr. Casgrain, Windsor; Dr. C. B. Hall, Toronto; Dr. Robert Lambert, Windsor; Dr. A. A. Andrews, Windsor; Dr. E. Nesbitt, Sandwich; Dr. George McMicking, Goderich; Dr. F. B. McCormick, Ripon, Ont.; Dr. F F. Bell, Ambertsburg.

The motion was unanimously adopted.

Dr. Richardson, of Toronto, being introduced as spokesman from the Canadian delegation, expressed his gratification at the unexpected honor conferred upon him by this selection.

Dr. Toner then read his inaugural address.

After the conclusion of the address, Dr. Parvin, of Indiana, moved that the recommendations (contained in it) of the President be referred to the following committee: White, of New York; J. D. Jackson, of Kentucky; Bartlett of Wisconsin; Shippen, U. S. Navy; and Westmoreland of Georgia. The motion was adopted.

Announcements of papers to be presented to the Association were made and referred to the appropriate sections.

The Committee of Arrangements announced that, every morning, delegates would be furnished with a full programme of the day's exercises, including the papers to be read in each section.

On motion, the delegates from each State were instructed to meet at 8½ o'clock Wednesday morning, to select chairmen for their respective delegations.

During the session a telegram conveying the following invitation from Texas was received, but was not read to the Association, which adjourned to meet at 9 o'clock this morning:

"HOUSTON, TEXAS, June 1, 1874.

"*To the President and Members of the American Medical Association:*

"Whereas, The delegates of the Texas State Medical Association were instructed to use their influence to secure the City of Houston as the place for the next annual meeting of the American Medical Association; therefore be it

"Resolved, That the Council of the City of Houston, Texas, in special meeting, do extend to the President and members of the American Medical Association a cordial invitation to hold their next annual meeting in this city, and the free use of the City Opera House, with a capacity for 1,300 persons, at such time as they may designate.

"J. T. D. WILSON, Mayor."

JUDICIAL COUNCIL.

The Judicial Council of the Association met in the office of Dr. Brodie at 9 o'clock in the morning, and organized by electing Dr. N. S. Davis, of Chicago, as permanent chairman, and Dr. N. S. Benham, of Pittsburg, permanent Secretary. The members present were, Drs. Askew, of Delaware; Howard, of Maryland; Gale, of Kentucky; Dunlap, of Ohio; Lilly, of New Jersey; Benham, of Pennsylvania; Morgan of Washington, D. C.; Bartlett, of Michigan; Todd, of Indiana; Davis of Illinois.

The question of revision of the Code of Medical Ethics came up, and was under discussion at the hour of adjournment.

At 2½ o'clock P. M., the several sections were called to order by their respective officers, and proceeded directly to the reading and consideration of the reports and papers that had been referred to them. In the Section on Practical Medicine, Materia Medica and Physiology, Dr. Bulkley read an interesting paper on the treatment of Eczema, which elicited some remarks from Drs. Grover, Woodward, McLaughlin, Pierce, Gray, Octerlony, Johnson, and Canfield; after which it was referred to the Committee of Publication.

Dr. P. J. Farnsworth, of Iowa, read a paper on the Therapeutic Uses of Ammonia, which, after a brief discussion, was referred back to its author, with permission to publish it in such medical periodical as he might choose.

In the Section on Obstetrics and Diseases of Women, Dr. T. Parvin presented some instruments for inspection, and Dr. Beck of Fort Wayne, Indiana, read a paper on the Theory of Generation. It was followed by a discussion, participated in by Drs. J. P. White, of Buffalo; W. H. Byford, of Chicago; J. M. Sims, of New York; and M. A. Pallen, of St. Louis.

The Section on Surgery and Anatomy was presided over by Dr. S. D. Gross, of Philadelphia. Dr. A. Dunlap, of Springfield, Ohio, read a paper on Enchondroma over the Sternum, which was referred to the Committee of Publication.

Dr. E. M. Moore, of Rochester, New York, read an interesting paper on Epiphysecal Fracture of the Superior Extremity of the Humerus, which elicited remarks from Drs. Quimby, of New Jersey; Hughes, of Iowa; Keller, of Kentucky; Reyburn, of Washington; Gross, of Pennsylvania; and Gregory, of Missouri; after which the paper was referred to the Committee of Publication.

Dr. Lewis A. Sayre, of New York, presented a report on Fractures, stating verbally an abstract of its contents. This led to an animated discussion by Dr. Sayre and Dr. Gregory, of St. Louis, pending which, the Section adjourned.

The Section on Medical Jurisprudence and Chemistry met and adjourned without transacting any business.

The Section on State Medicine and Public Hygiene was called to order by its Chairman, Dr. A. N. Bell, of Brooklyn, N. Y. A paper by Dr. H. I. Bowditch, of Boston, concerning the establishment of State Boards of Health and of a National Sanitary Bureau, was read by the Secretary. Drs. R. C. Kedzie, of Michigan; A. B. Stewart, of Minnesota; and A. N. Bell, of Brooklyn, New York, also read abstracts of papers on the same subjects.

Dr. Kedzie offered a resolution that the Association petition Congress for the establishment of a National Sanitary Bureau, which was discussed at considerable length by Drs. Kedzie, Brown, Cochrane, Bell, Westmoreland, Johnson, Thomas, Pratt, Van Demen, Waterhouse, Jones, Baker, Howard, Hitchcock, and Grey; after which the resolution was adopted, and the Section adjourned.

SECOND DAY'S PROCEEDINGS.

DETROIT, June, 3, 1874.

PLACE OF MEETING CHANGED.

The Association, on reässembling this morning, found that though Hough's pretty little theatre could comfortably seat 800 or 900 persons, it was too small to accommodate all the delegates and spectators, and the place of meeting was changed to the Opera House.

At 9:30 the meeting was called to order by the President.

On motion, the reading of the names of the newly arrived delegates was suspended until the next session of the Association. The programme of the day was read by Dr. Brodie.

The Committee on Nominations was announced.

RESOLUTIONS.

Dr. R. R. Porter, of Delaware, offered the following; which was referred to the Executive Council:

Whereas, The National Medical Association has entered its twenty-fifth year of existence, during which the active members have labored zealously to elevate the science of medicine by recording and reporting individual experiences, publishing valuable papers and essays, and by their efforts to bring under one rule all its members, set forth in our system of ethics, which wise code, based on honor, right and justice, acknowledged now by thirty States, facts that show the great good accomplished and proclaim the National Medical Association an institution of which its members may behold and rejoice and be proud.

Whereas, During our fraternal strife, when the manifestations of medical brotherhood were suspended for a short period, the activities thereof were unextinguished, nay, unextinguishable, are declarative that the National Medical heart was more liberal, true to right and faithful to principles that have ever moved it. For its controlling power allowed an interruption of only one annual meeting, when its biddings declared that united friendship and cordial greeting should be resumed, forming one of the brightest pages of the National Medical Association; therefore,

Resolved, That in the recommendation and appointment of committees, preference should be given to delegates present to those in non-attendance.

REPORT OF JUDICIAL COUNCIL.

Dr. N. S. Davis, of Illinois, chairman of the Judicial Council, then read his report.

DISPOSITION OF REPORT.

Dr. Van Demen, of Tennessee, moved the adoption of the report.

The resolution was adopted unimously.

REPORT OF MEMORIAL TO CONGRESS.

Dr. Keller, chairman of the Committee on Rank of the Medical Staff of the Army, read his excellent report.

Surgeon Woodward, of the army, on behalf of the medical department of the United States army, thanked the committee for the report, and concurred with the views expressed in regard to the effect of the panic upon the action. He explained the action of the present law upon the rank of army medical officers. He therefore offered the following amendments to the resolution: After the word "territory" insert the words "with power to fill vacancies," omit the words, "by the President," and add the following:

Resolved, That Dr. J. M. Toner, of the District of Columbia, be chairman of said committee, and that the other members of the committee be appointed by the President.

Unanimously adopted.

ANNUAL ADDRESS ON PRACTICAL MEDICINE.

Dr. N. S. Davis, President of the Section of Practical Medicine, Materia Medica and Physiology, read his address. It occupied less than the prescribed limit of forty minutes; was well received, and referred for further consideration to the Section just named.

Dr. S. D. Gross, of Philadelphia, President of the Section on Surgery and Anatomy, delivered his annual address, which, although occupying a full hour and a half, was listened to with fixed attention to its close, when it was referred to the Section over which he presided; and the Association then adjourned.

At 2½ o'clock the sections reässembled in their respective rooms, but the numbers in attendance were less, on account of a steamboat excursion on the river for the benefit of the ladies. In the Section on Practical Medicine, Materia Medica and Physiology, a paper on the Indigenous Medical Botany of West Virginia, by Dr. E. A. Hildreth, was presented, but the author not being present, it was referred for examination to a subcommittee, consisting of the President of the Section, with directions to report to the Committee of Publication.

The report of Dr. Samuel J. Deal, on the Cultivation of the Cinchona Tree, was read, its recommendations adopted, and the committee continued.

A paper of some length on the Mechanism of the Encephalic Circulation, by Dr. R. A. Vance, was read by Dr. W. M. Carpenter, the author not being present. The paper elicited a brief discussion, after which it was referred back to the author for publication in such medical journal as he might choose.

Dr. F. R. Buckham, of Flint, Michigan, read a paper on

Uræmia and its Relations to Renal Disease, which elicited remarks from Drs. Bennett, Hyatt, Octerlony, and Farnsworth; after which it was referred to the Committee on Publication. The Section then adjourned.

In the Section on Obstetrics and Diseases of Women, a paper was read on the Inverted Uterus, and referred to the Committee of Publication.

A new form of Pessary was presented, and its use explained by Dr. Scott, of Woodstock, Canada, which elicited an interesting discussion, participated in by Drs. Warner, of Boston; Miner, of Buffalo; Pallen, of St. Louis; White of Buffalo; Byford, of Chicago; Ditherly, of Syracuse; and Morris, of Baltimore. A vote of thanks was tendered to Dr. Scott, and the Section adjourned.

In the Section on Surgery and Anatomy, the time of the session was wholly occupied with a continuance of the discussion on the Treatment of Fractures, elicited by the report of Dr. Sayre, presented yesterday. It was participated in by Drs. Garcelon, of Maine; Waterhouse, of Wisconsin; Sayre, of New York; Reed, of Ohio; Whiting, of Wisconsin; Quimby, of New Jersey; Hughes, of Iowa; Pierce, of Illinois; Gregory and Guilford, of Missouri, and King, of Pennsylvania. The report of Dr. Sayre was referred to the Committee of Publication.

In the Section on State Medicine and Public Hygiene, Dr. R. C. Kedzie read a paper on the Influence of Drainage on the Public Health. Papers on the same subject were also presented by Drs. Cabell, of Virginia, and Bell, of New York.

A report by Dr. Robert D. Murray, Surgeon of U. S. M. H. Service, on the Climatic Influences of Key West, was also presented. After some discussion, these several papers were referred to the Committee of Publication.

ADDRESS BY DR. GROSS.

L. D. Gross, M. D., LL. D., C. L., Oxon, delivered a long, learned and deeply interesting address upon a professional subject of great interest—Syphilis.

Dr. J. M. Keller, of Kentucky, invited the Association to hold its next annual meeting in Louisville.

THIRD DAY'S PROCEEDINGS.

DETROIT, June 4, 1874.

The Association was called to order this morning at half past nine o'clock, a number of ladies being present.

The first order of business was the reading of the roll of delegates.

Dr. Brodie chairman of the Committee of Arrangements, read the order of business of the day.

COMPLIMENTARY MEMBERSHIPS.

Dr. Grant, of Ottawa, and Dr. Murphy, of Chatham, were elected members of the Association by invitation.

OBITUARY.

Dr. James P. White, of Buffalo, stated that he had received a note from Dr. S. D. Gross, who had been called away by a telegram informing him of the dangerous illness of a member of his family, and before leaving he wished to announce the death of Dr. Henry Miller, of Louisville, an ex-President of this Association, and for many years Professor of Midwifery in the University of Louisville, and afterwards of the Diseases of Women in the Louisville Medical College.

As a proper expression of the feelings of the Association, Dr. Gross had requested the presentation of the following preamble and resolutions:

Whereas, This Association has heard with profound regret of the death of Dr. Henry Miller; and,

Whereas, It is meet and proper that, where a great and good man falls in our ranks, a suitable record should be made of the event; therefore, be it

Resolved, That in the demise of our brother, this Association has lost one of its most estimable members, Kentucky one of her most eminent and successful practitioners, obstetric medicine one of her ablest expounders, and the American Medical Association one of its best thinkers and writers.

Resolved, That this preamble and resolution be spread upon the minutes of our proceedings, and that a copy of them be sent to the family of the late

Professor Miller, with the assurance of our heart-felt sympathy in their bereavement.

Dr. White, in presenting these resolutions, supported them in a brief speech, eulogistic of the deceased, and in conclusion suggested that a committee be appointed to prepare a memoir of Dr. Miller.

The preamble and resolutions were adopted.

Dr. Sayre, of New York, moved that Dr. White be appointed as the committee to prepare the memorial.

Dr. White said that he would much prefer that it be prepared by the intimate colleagues of the deceased. He therefore made a motion to that effect, which was adopted.

The Chair appointed as such committee, Drs. S. D. Gross, of Philadelphia, J. M. Keller and E. S. Gaillard, of Louisville.

Dr. Keller, of Louisville, announced that he had been requested by the Society of Boyle county, Ky., to bring before the Association the following resolutions, adopted by that Society in reference to

THE LATE DR. EPHRAIM M'DOWELL.

Resolved, That in the opinion of this Society the time has come in which an effort should be made to erect a statue or some other suitable memorial in honor of Dr. Ephraim McDowell, "the father of ovariotomy, who lived and died in our midst, and who performed his first operation for ovarian tumor here in Danville, in 1809."

Resolved, That with this view a committee of three be appointed from this Society to attend the approaching meeting of the Kentucky State Medical Society, who shall be empowered to lay the matter before the Profession, constituting that organization, requesting their aid in devising and executing such measures as may be deemed most conducive to the end in view.

Dr. Keller, after reading the foregoing, offered the following preamble and resolution:

Whereas, A most laudable effort has recently originated in the Boyle County Medical Society of the State of Kentucky and in the Kentucky State Medical Society, to create a fund for the erecting of a statue or some other suitable memorial in honor of Dr. Ephraim McDowell, "the father of ovariotomy," English writers to the contrary notwithstanding, who lived in the town of Danville, in the State of Kentucky, and who performed in that town the first ovariotomy in the year 1809.

Resolved, That the American Medical Association most earnestly endorse the action of said County and State Societies, and as urgently commend the object to the generous consideration of the Medical Profession of the world.

After discussion, the resolutions were adopted.

REPORTS FROM CHAIRMEN OF SECTIONS—BY DR. PARVIN, CHAIRMAN SECTION OF OBSTETRICS.

The hour of 10 o'clock having arrived, Dr. Parvin, of Indianapolis, Indiana, chairman of Section No. 2, read an address having peculiar reference to the branch of medical science committed to the Section.

On motion, the thanks of the Association were extended to Dr. Parvin for his address, and the paper referred to the Section for action.

A CONSTITUTIONAL POINT.

Dr. White, of Buffalo, moved to set aside the order of business that Dr. Pallen might read his paper on Gynæcology, announced on the programme. The motion elicited an excited discussion, and it was finally decided that the paper not having been reported from the Section to which it belonged, could not properly be read before the general body.

DR. BELL, CHAIRMAN OF SECTION ON STATE MEDICINE.

Dr. A. Nelson Bell, chairman of Section No. 5, next read an address on the Waste of Life.

On motion, the thanks of the Association were tendered to Dr. Bell, and the paper referred to the Section for action.

The Secretary then read the following papers:

REPORT OF COMMITTEE ON PRIZE ESSAYS.

To the President of the American Medical Association:

The Committee on Prize Essays have to report that they have received but one paper.

The committee, after careful examination of the essay submitted, are of opinion that though it possesses considerable merit, it is not entitled to one of the prizes offered by the Association.

G. H. Johnson, Chairman,
N. O. Hitchcock,
E. S. Gaillard.

The report was accepted and filed.

COMMUNICATION FROM PHILADELPHIA COUNTY MEDICAL SOCIETY.

PHILADELPHIA, Feb. 17, 1874.

Dr. S. D. Gross:

At a recent meeting of the Philadelphia County Medical Society you were appointed chairman of the following committee of fifteen: S. D. Gross, L. Turnbull, W. R. Atkinson, A. Fricke, D. Rurpee, H. Lennox Hodge, R. E. Rodgers, W. L. Atlee, J. G. Stetler, M. O'Hara, O. Hayes Agnew, I. S. Eshleman, W. H. Pancoast, Robert Burns, Edward Wallace, in accordance with the following resolutions:

Whereas, In view of the approaching centennial celebration, it is right and proper that this Society, embracing as it does in its organization the medical practitioners of the city and county of Philadelphia, should take the initiative relative to the medical portion of said celebration; therefore, be it

Resolved, That we hereby invite our medical brethren of the world to assemble in medical congress in Philadelphia July 4, 1876; and we also invite the Medical Society of the State of Pennsylvania and the American Medical Association to hold their annual sessions at the same time, in order to discuss the important medical topics of the day.

Resolved, That an executive committee of fifteen members, including the President of this Society, be appointed to carry forward the objects expressed by the foregoing resolutions. Very respectfully.

H. LEAMAN, Rec. Sec. Phil. Co. Society.

The resolutions were referred to the next meeting of the Association.

NECROLOGY.

The report on the necrology of the year from Dr. A. M. Seguin was referred, without reading, to the Committee on Publication.

The names of the following gentlemen were announced as having been appointed delegates to foreign Bodies: R. J. Levis, D. G. Brinton, T. M. Drysdale, Philadelphia, Penn.; E. C. Howard, E. Seguin, New York; L. C. Law, California; J. D. Jackson, Kentucky; A. J. Erwin, Mansfield, Ohio; George W. Burton, Mitchell, Indiana.

REPORT OF DR. SEGUIN.

Dr. E. Seguin, of New York, submitted his report.

RESOLUTIONS.

The following resolutions were adopted:

Resolved, That the Committee of Publication be empowered to exchange copies of our Transactions with all State Medical Societies and journals; also with the Bureau of Medicine and Surgery of the Army and Navy, and with the library of Congress.

Resolved, That a similar exchange be entered into with the various foreign medical societies.

By Dr. Woodward, U. S. Army—To have continued the Committee on Representation in Nomenclature, College of Surgeons, London. Adopted.

By Dr. Wilson, of Michigan—Resolutions of censure on a physician. Referred to Judicial Council.

By Dr. William B. Atkinson, the following:

Resolved, That a suitable die for a medal, with a likeness of Dr. N. S. Davis on one side and the name and date of the organization of this Association on the opposite, be procured by this Association, and that hereafter one be furnished to each delegate on becoming a member.

The resolution was adopted, and Drs. Toner, Woodward, and Keller appointed a committee to procure the die.

By Dr. A. M. Pollock, of Pittsburg, the following, which was adopted:

Resolved, That a committee of fifteen be appointed by the President of this Association to confer with the committee appointed by the Philadelphia County Medical Society relative to the meeting of the American Medical Association in Philadelphia in 1876, and be required to report the result of their conference to this Association at its next meeting.

EXONERATED.

Dr. N. S. Davis, chairman of the Judicial Council, reported that Dr. W. T. Myer, of Fort Wayne, Indiana, was a physician in good standing, and was exonerated from all charges preferred against him.

A RELIC.

Dr. Wm. Brodie, of Detroit, presented to the Association the original copper plate on which was engraved the cards of membership used when the Association met in Detroit in 1856.

On motion, the plate was accepted and placed in the archives, and a vote of thanks tendered to Dr. Brodie for the valuable relic.

While waiting for the report of the Committee on Nominations, Dr. Davis, at the request of Dr. Brodie, took up the time in giving his views upon the method of conducting the business of the meetings.

The Committee on Nominations not yet being ready to report, the Association adjourned till to-morrow at 9 o'clock.

FOURTH DAY'S PROCEEDINGS.

The Association was called to order a short time after the regular hour Friday morning by the President, and by unanimous consent the reading of the minutes was dispensed with.

On motion, Dr. E. W. Jenks, was added to the list of delegates authorized to represent the Association before similar foreign organizations.

INTERNATIONAL ASSOCIATION.

On motion, the following were appointed a committee to digest a plan for an International Medical Association: Drs. J. M. Toner of the District of Columbia; N. S. Davis, of Chicago; Alfred Stillé, of Pennsylvania; Austin Flint, Sr., of New York, and J. S. Billings, U. S. A.

PAY FOR THE SECRETARY.

Dr. T. Parvin, of Indiana, moved that an appropriation of $300 be made to recompense the Secretary for his services.

Half a dozen delegates in different portions of the house leaped to their feet, and moved to amend by making the compensation $500 instead of $300. After a short discussion, the sum to be paid was fixed at $500, and in this shape the motion was passed. (By no means a liberal compensation.—ED.)

THE NOMINATIONS.

Dr. H. T. Byford, of Colorado, submitted the report of the Committee on Nominations, which, after various corrections, was adopted as follows:

President, Dr. W. K. Bowling, of Tennessee. Vice Presidents, Dr. William Brodie, of Michigan; Dr. J. J. Woodward, of United States Army; Dr. H. W. Brown, of Texas; Dr. H. D. Didama, of New York. Treasurer, Dr. Caspar Wistar, of

Pennsylvania. Librarian, Dr. William Lee, of District of Columbia. Committee on Library, Dr. Johnson Elliott, of District of Columbia. Assistant Secretary, Dr. Will. Walling, of Kentucky. Committee of Arrangements, Drs. Edward Richardson, chairman; Lawrence Smith, Robert Gale, James Holland, Henry Bullitt, J. M. Keller, D. W. Yandell, Lewis Rogers, R. C. Hewitt, all of Louisville, Ky. Committee on Prize Essays, Drs. J. A. Octerlony, L. P. Yandell, J. D. Jackson, all of Kentucky; Theophilus Parvin, T. M. Stevens, both of Indiana. Committee of Publication, Drs. F. G. Smith, William B. Atkinson, D. Murray Cheston, Caspar Wistar, Alfred Stillé, all of Pennsylvania; William Lee, of District of Columbia; H. F. Askew, of Delaware. Next place of meeting, Louisville, Ky.; time of meeting, first Tuesday in May, 1875. Judicial Council, Drs. J. K. Bartlett, of Wisconsin; R. H. Gale, Kentucky; J. B. Johnson, Missouri; J. R. Bronson, Massachusetts; B. H. Catlin, Connecticut; Frank Staples, Minnesota; W. T. Briggs, Tennessee, in place of the seven whose terms expire at this meeting. Dr. A. N. Talley, of South Carolina, for two years, to fill vacancy. The rest of the present Council continued. Special Committees, Dr. R. H. Storer, chairman of a committee to report on American as compared with foreign winter cures, continued. Dr. John Morris, of Baltimore, special committee on the use of pessaries. Dr. John A. Octerlony, of Kentucky, special committee on cystic degeneration of the kidneys. Dr. W. D. Hand, of Minnesota, special committee to report on the diseases of Minnesota and the Northwest.

Resolved, That the permanent Secretary be requested to publish in connection with the report of this committee full lists of all the committees of the Association as at present constituted.

The Secretary then read the report of the Committee of Publication. He also read the report of the Treasurer.

The following is the formal resignation of the Treasurer, accompanying the report:

The office of Treasurer has been held through the favor of this Association by the present incumbent for nineteen years, and he now indulges the hope, that, in consideration of his long services, he may be granted a release; therefore, thanking the Association for its long continued confidence, he offers his resignation. CASPAR WISTAR.

On motion, the reports of the Publication Committee and Treasurer were accepted, and, except such portions as referred to the resignations, were adopted.

RESIGNATIONS REFUSED.

Dr. William Brodie, of Michigan, offered the following resolution; which was adopted unanimously:

Resolved, That in view of the eminent services of Drs. Wistar and Smith, we respectfully return to them their respective resignations, and insist that they shall continue in the performance of the duties of their respective offices.

At this juncture the Secretary announced the reception of the following telegram:

CINCINNATI, O., June 5, 1874, 9:15 A. M.

Secretary of the American Medical Association,—Dr. George Mendenhall, ex-President of the American Medical Association, died last night. CHARLES MENDENHALL.

The reception of the telegram caused audible expressions of regret in all portions of the house, and a motion was passed requesting the President to appoint a committee to draft suitable resolutions in reference to the deceased.

The Chair appointed a committee, one member of whom seemed obnoxious to a large number of the Association, and a somewhat acrimonious discussion ensued, which resulted in the appointment of the following committee: Drs. Murphy, Richardson, Highway, and Carson.

Dr. Keller, of Kentucky, offered the following resolution, which was adopted:

Resolved, That the resolutions offered and passed, appointing a committee to draft suitable resolutions in memory of Dr. Mendenhall, deceased be so amended as to instruct that committee to prepare said resolutions in time for publication in the Transactions of this session.

Dr. J. H. Van Deman, of Tennessee, offered the usual resolutions of thanks.

Dr. N. S. Davis, of Illinois, seconded the resolutions. While he cordially supported all that had been said in regard to hospitality, etc., he must make special mention of the judicious labor of the Committee of Arrangements. With the exception of New Haven, this is the first time that every section has been actually provided for, and everything done in good order, good time, and with good space.

Dr. Buckham, of Flint, asked for a standing vote, and the resolutions were adopted unanimously.

DR. TALLEY'S ADDRESS.

Dr. Talley apologized on account of ill health, and was granted leave to submit his paper to the Committee on Publication.

DR. GROSS' ADDRESS.

Dr. Keller, of Kentucky, submitted the following resolution in reference to the address of Dr. Gross:

> Resolved, That in furtherance of the views expressed by Dr. Gross in his valuable address touching a proper legislation to prevent the spread of syphilis, a committee composed of Dr. Gross, Dr. N. S. Davis, Dr. J. M. Toner, Dr. Marion Sims, and Dr. John Morris, be appointed to report at the next meeting the most feasible plan for securing such legislation.

The resolution was adopted.

SURGERY IN THE WEST.

A record of what the West has done for American surgery, by Dr. Paul F. Eve, of Nashville Tennessee, was submitted to the Association by Dr. Brodie, who said it had been received by mail too late for reference to the proper Section.

The paper was, on motion, referred to the Committee on Publication.

CANADIAN RESOLUTION.

Dr. Hall, of Toronto, submitted the following resolution:

> Resolved, That the Canadian physicians attending this meeting of the American Medical Association, can not take their departure without giving expression to their sense of appreciation of the fraternal kindness extended to the Medical Profession of Canada, by favoring them with invitations and bestowing upon them such generous hospitality.

Dr. Hall, in presenting the resolution, said that he wished to express the thanks of the Canadian delegates for the reception which had been tendered to them by the Association. He felt that himself and his associates had derived very great benefit from the meeting. They had become aware that medical science had advanced to a very high point in the United States, and the result of the meeting had been to increase the liberality of all the delegates, who had learned to respect each other, and to labor more mutually for the good of the Profession. Dr. Hall expressed the good will which Canadians and Englishmen feel towards Americans, and especially to men engaged in similar professions. He spoke very wittily of the peculiar differences between American and Canadian institutions, and of the different forms of government in Great Britain and the United States, alluding to the good-looking Queen who governs the former, and to the rather grim-looking soldier who rules over the latter. In conclusion, Dr. Hall trusted that they might next year see a large number of the members of the American Medical Association at the meeting of the Canadian Society.

Dr. Richardson, of Toronto, seconded the resolution, saying that he could not allow the opportunity to pass to express his thanks for the honors and courtesies he and his friends had received. He had not felt that he was a Canadian or a stranger. Both by members of the Association and by citizens of Detroit they had been received with such friendliness that they felt that no words of appreciation could be extravagant.

Dr. N. S. Davis, of Illinois, responded to the kind sentiments expressed by his Canadian confréres, for he said that in these meetings the greatest benefits which were received were not the acquisition of knowledge, but the kindling of emulation and professional pride. The friendly contact of these meetings would send the delegates to their homes, he said, with that magnetism which would do them more good than their patients receive from pills and powders. He had himself been in attendance at the meeting of the Canadian Medical Association, and had received the kindest and the most hospitable treatment.

He rejoiced that the profession to which he belonged contained such ornaments to medical science as are now to be found in Great Britain, Canada and the United States, and that the science has no boundaries save the desire to benefit the human race.

The resolution was adopted.

MISCELLANEOUS.

The roll of members was then read and confirmed.

Dr. Wm. Brodie announced that 427 members and 100 ladies had been in attendance, besides the Canadian delegation of fifteen.

Mrs. Eliza S. Leggett presented to the Association a book written by her father more than a hundred years ago, and also a pamphlet, showing that that gentleman was the first to introduce the doctrine of Jenner into this country, and the lancet with which the vaccination was made. Accepted with thanks.

The minutes of the various Sections were received and referred to the Publication Committee.

Dr. Lee, of Philadelphia, offered the following resolution, which was adopted:

> Resolved, That it shall be the duty of the Permanent Secretary to furnish the Committee on Nominations, immediately upon its appointment, a complete list of the members of the Association and a copy of the minutes of the last meeting.

AMENDMENT TO THE CONSTITUTION.

Dr. H. B. Baker, of Michigan, offered the following proposed amendment to the constitution, which, under the rules, was laid over until the next session of the Association:

> The officers of the several Sections shall be nominated by the Sections in and for which said officers are to serve.

THE NEXT MEETING.

Dr. Richardson, of Louisville, Ky., chairman of the Committee of Arrangements, extended a cordial invitation to all present, and especially to his Canadian brethren, to be present at the meeting to be held in Louisville.

MORE THANKS.

Dr. Porter, of Maryland, offered a resolution of thanks to Peter Nebroth, janitor of the Opera House, and to the attendants in general for their politeness and attention.

Dr. Brodie, on behalf of the citizens of Detroit, expressed the great pleasure which they had experienced in entertaining the members of the Association and the ladies accompanying them, and their hopes to again have the same pleasure and privilege.

PRESIDENT'S VALEDICTORY.

There being no further business before the Association, Dr. J. M. Toner, the President, delivered his valedictory, closing thus:

GENTLEMEN,—Your labors are brought to a close. We are about to adjourn the twenty-seventh annual meeting of the American Medical Association.

Before putting the motion that shall at once terminate the session and my official relations to this Body, permit me once more to thank you for the courteous and efficient manner in which you have supported and assisted me in conducting the business that brought us together, and congratulate you for the philosophic, thorough and intelligent manner in which you have viewed and discussed the different questions that have been presented before us.

I am quite sure that this meeting will be conspicuous in our annals and long remembered by all who have participated in its profitable deliberations and partaken of the unbounded hospitalities of the people of Detroit. The character of the work done by us must serve to make this Association more extensively known throughout the world, and its purpose and its aims better understood by the people and the Profession of the United States.

I am confident we all feel more than rewarded for our attendance, by the new ideas we have gained and the actual increase of our professional knowledge, and by the cementing of old friendships and the formation of many new and agreeable acquaintances.

The question now before us is, that the American Medical Association adjourn to meet in Louisville, Ky., on the first Tuesday in May, 1875.

NOTE.—Acknowledgment is gratefully made to Dr. W. Brodie, of Detroit, and Dr. Keller, of Louisville, Ky., for complete files of Detroit papers, and to the "Chicago Medical Examiner" for condensed reports of Section work.—ED.

CENTRAL KENTUCKY MEDICAL ASSOCIATION.

The Association held its fifteenth regular meeting at Lancaster, Ky., April 15, 1874, in the Odd Fellows' Hall, at 10 o'clock A. M., the President, Dr. John D. Jackson, in the chair.

Present: Drs. Reid, Price, Harlan, Burdett, H. Brown, Smith, U. S. A., Bohon, Baily, Huffman, McKee, C. H. Spilman, Craig, Cowan, Dunlap, Frazee, Nelson, and Erwin.

After an excellent address from Dr. Reid, the retiring President, the debate was opened by Dr. C. H. Spilman, of Harrodsburg, with an exhaustive paper on Embolism, the question for to-day.

Dr. McKee said the paper was exceedingly interesting and able. The genesis and difference between thrombosis and embolism, however, had not been clearly defined. The first applies to the veins, the other to the arteries. In thrombosis, the clot may be found anywhere, and is stationary, and he did not think there was any difference between it and heart-clot. The cause he believed to be a predisposition to an excess of fibrin and excessive depletion. He agreed with the views the author of the paper had expressed in regard to embolism. He believes, however, that emboli, as a rule, were detached from the left side of the heart.

Dr. Huffman thought Dr. Spilman had read an admirable paper. He could not agree, though, with Dr. McKee, that emboli were generally detached from the left side of the heart. Both affections, he believed, resulted from anæmic conditions. Emboli were more generally detached from the *right side of the heart, passing from the right ventricle into the pulmonary artery and its branches.*

Dr. Harlan objected to the definition given to both lesions. It was difficult, he said, to understand how venæsection, as advocated by Dr. Spilman, could act remedially, since depletion itself was one cause of the disease.

Dr. Burdett said the paper was very comprehensive, and he coïncided in the main with the views set forth in it. He thought there was very little difference, practically, between thrombosis and embolism. A certain amount of heat is necessary to prevent coägulation, and in these affections he believed there is an insufficiency. He thought it an error to bleed for embolism.

The President said he had listened to the excellent paper of Dr. Spilman with much interest. He observed, however, that neither Dr. S., in opening the debate, nor any of the gentlemen who had followed him, had made any reference to the prognosis in cases of embolism—a matter of great importance to us when we might have a case under charge.. Embolism, connected with heart disease, he said, is nearly always fatal. Dr. Ward, of New York, had collected thirty cases in which cardiac disease was present, and found that only one had recovered; while in twenty-three cases in which this complication did not exist, there were ten recoveries. He said it was also a matter of some interest to know that an apoplectic or hæmorrhagic infarctus in the lungs, liver, or other of the soft tissues, could be readily distinguished, post-mortem, from an embolic clot by the difference in shape; the extravasation of the former having no definite shape, while that of the latter from the mode of its formation, extending by the collateral branches of the vessels, must always be wedge-shaped. While he did not think he could rely much upon the aid of any medicine for the solution of a heart-clot, when once formed, yet carbonate of ammonia, in large doses, promised more at present than any other remedy, and he believed Dr. Richardson, of London, who had attracted the attention of the Profession to its use, had reported a case, under his charge, in which a perfect solution, issuing in the recovery of the patient, had followed heavy doses of carbonate of ammonia frequently repeated. During the past winter, he said, he had been presented by Dr. McKee with a very beautiful specimen of an exceedingly firm, fibrinous heart-clot, which, attached to the carnæ collumniæ and cardæ tendinæ, ran far up into the pulmonary artery. He had intended preserving it in alcohol, but in order that the alcohol might not be too much discolored by it, had placed it in strong salt-water to stay several days prior to final mounting. On taking it out of the preparation to put it into the jar of alcohol, to his great surprise, there was not the slightest trace of the clot in the heart remaining; the solution had been perfect. This observation very naturally suggests the query, whether chloride of sodium might not prove, on trial, to be the safest and most effective of all medicines for heart-clot in the living subject?

Dr. Spilman said those therapeutical inductions founded on the recent experiments of Dr. Richardson, attaching great value to ammonia as a means of maintaining the fluidity of the blood and correcting a liability to embolic formation, are mainly predicated on an assumption wholly gratuitous; has no existence, in fact, and is at variance with the true pathology of this malady. It assumes that fibrinous coägula are formed in the vessel of the living subject without antecedent disease of the vessel. It also assumes that the agent is absorbed, and acts directly upon the blood, both which assumptions are alike irreconcilable with well known laws of physiology. He knew of no medium, he said, through which vital agents, whether natural, morbific or remedial, may act upon the animal economy, except upon the organic properties implanted in the instruments of vital action. Complete occlusion from the lodgment of a floating body, in the absence of a collateral supply, is usually so suddenly fatal as to offer no hope through the intervention of art. Partial obstruction by thrombosis or complete occlusion, when anastomosing vessels come to the rescue, usually afford a season which ought to quicken every energy of the practitioner, however unpromising his efforts may seem. Palliation should be sought even when relief is unattainable. We are now, he said, to suppose a case in which the time for active anti-inflammatory treatment has imperceptibly passed. The local lesion, according to its extent and vital nature of the parts involved, throws a depressing influence over the general system, and sustaining measures are imperatively demanded, until the collateral vessels, like the remaining senses, when one is destroyed, acquires an enlarged capacity and increasing adaptation to the new demand. A well-regulated hygienic treatment, nutritious diet, tonics, stimulants and cordials, accompanied by such remedies as tend to quicken the action of the absorbents. For controlling constitutional irritability and intense pain, opiates are highly useful; if peripheral, the local application of heat, disinfectants and antiseptics, according to the degree of vital deprivation. Such are the general indications. No safe rules, however, are to be laid down as adapted to any case. The physiological rate, the pathological state, the epiphenomena of the existing disorder must be clearly detected and carefully studied; and from this knowledge the physician must collect his indication of cure in any given case. Embolism is the product of thrombosis, and the result of a very low grade of inflammation. He did not believe coägula were ever formed in healthy veins during life.

The debate closed with some further remarks from Dr. Burdett.

Dr. H. Brown, chairman of the Section on Progress of Materia Medica, Therapeutics, Hygiene and Chemistry, read his report, exhibiting afterwards a number of specimens of new remedies alluded to in it, among them apiol, alvin, apomorphia, bromide of quinia, bromo-chloralum, iodo-bromide, calcium comp., croton-chloral hydrate, chloride of gold and soda xylol guarana, eucalyptus, cundurango, narceine, mono-bromate of camphor, iodoform, ergotine, lactopeptine and the lactophosphates.

Dr. Cowan exhibited Dr. Walker's intra-uterine stem pessary, his modification of Nélaton's catheter, better adjusted than in the sample shown by him at a previous meeting, and a specimen of Squibb's comp. tinct. of ipecac.

The President exhibited a specimen of carcinoma mammæ, which he had removed from the breast of a lady some two months before. The patient recovered well from the operation, and so far, with no further cancerous development; also an aneurism of the arch of the aorta from a man some fifty years old. The patient had manifested symptoms of laryngeal phthisis, his voice being greatly affected. Pulsation was very faintly visible between the second and third ribs, and the impulse of the heart was near the scrobiculus cordis. At no time, however, had the aneurismal bruit been perceptible, and the diagnosis, during the life of the patient, was made pretty much by reasoning by exclusion; after which he read a report of a similar case by Dr. T. S. McMurtry, of New Orleans, showing at the same time the specimen connected with the case.

Dr. Burdett presented an elderly lady, with a large pedunculated tumor on the inner surface of the left forearm. It had been under his charge but a short time, but was first noticed about six years ago, and had been thus far comparatively painless. There had been no treatment except simple domestic applications. A microscopical examination had failed to satisfy him as to the nature of the tumor. He, however, considered it malignant or semi-malignant, and had put the patient on Fowler's Solution, in anticipation of operating at the proper time.

Dr. McKee regarded it as an interesting case, and from its appearance, was inclined to class it with recurring fibroids, which would finally prove fatal. He would, however, operate.

Dr. Dunlap thought the tumor carcinomatous, and would operate after putting the patient in good condition.

The President being called upon for his opinion, remarked that he thought it malignant in character, but said it was impossible to state precisely its nature without subjecting it to the microscopic tests. Judging from the naked eye aspect alone, he would, as Dr. McKee had done, place it with the sarcomata. He would operate at once, with the expectation, however, of the case ultimately terminating fatally.

Dr. Burdett added some remarks on the efficacy of arsenic in cancerous affections.

Dr. Dunlap had no experience in the treatment, but saw no objections to it.

Dr. S. T. S. Smith, U. S. A., exhibited for Dr. Burdett a lad, six years old, with hemiplegia of the right side. The use of the leg was greatly impaired, and it was considerably emaciated and lowered in temperature. He had recovered the use of the arm in a good measure. The paralysis just manifested itself some two years ago, after a slight illness of a few days.

Dr. Dunlap said he had a case similar to this, in which paralysis followed recovery from cerebro-spinal meningitis. The lower limbs were entirely paralyzed. He thought this case arose from the same cause.

Dr. Burdett expressed the same opinion.

Dr. Price treated a case somewhat similar to this two years ago. The child was seized with spasms, followed by hemiplegia. It recovered under the use of iodide of potassium and the primary current.

Dr. Harlan was disposed to doubt that the trouble was caused by cerebro-spinal meningitis; certainly, he said, there was no evidence to that effect in the clinical history which had been given.

Dr. McKee thought this was an organic lesion of the brain or cord.

Dr. Huffman gave the particulars of a case of hemiplegia occurring in a child after an attack of cerebro-spinal meningitis. It improved under treatment.

Dr. Frazee also presented for Dr. Burdett a case of compound comminuted fracture of the tibia and fibula of the right leg, exhibiting at the same time a number of very large fragments of bone extracted from the wound. It was very apparent to all who looked at him, as the patient walked about the room with perfect ease upon the frightfully scarred and deformed limb, that the injury had been one of the very severest from which a patient ever recovers without amputation. Indeed, the limb had originally been condemned to be removed by all who had seen it, including an eminent professor of surgery in one of the colleges. The patient had, however, resolutely refused to submit to amputation, and Dr. Burdett had taken charge of the case with many misgivings, but by dint of the continuous use of cold applications and carbolic-acid wash locally, with good diet and stimulants, the result had been far happier than could have been anticipated. The case excited great interest among the members, and many complimentary comments were made on the treatment and result.

Dr. Baily, chairman of the committee on the death of Dr. George McRoberts, of Stanford, read an address commemorative of his life and professional services.

On motion of Dr. McKee, the President was empowered to appoint the requisite number of delegates to the next meeting of the American Medical Association.

The President appointed the following members chairmen of the different Sections; after which he announced the standing committees for the year.

On the Progress of Medicine, Physiology and Medical Pathology—Dr. Baily, chairman, Standford, report July 1874.

On the Progress of Materia Medica, Therapeutics and Chemistry—Dr. S. T. S. Smith, U. S. A., report October, 1874.

Progress of Midwifery, Gynæcology and Diseases of Children—Dr. McKee, Danville, report January, 1875.

Progress of Surgery, Anatomy, and Surgical Pathology—Dr. Price, Harrodsburg, report April, 1875.

After a vote of thanks to the Odd Fellows for the use of their Hall, and to the Garrard County Medical Society for a handsome entertainment, and other hospitalities, the Association adjourned at 5½ o'clock, to meet in Harrodsburg on the third Wednesday in July next, when the debate will be opened by Dr. Dunlap, of Danville, on cholera.

GEORGE T. ERWIN, Permanent Secretary.

NOTE.—By error of Express Company, these proceedings were received too late for the June issue.—ED.

CHEMICAL AND PHARMACEUTICAL.

"Diruit, ædificat, mutat."---HOR.

Direct Determination of the Elements of Organic Substances by a Single Combustion.—Mitscherlich has recently discovered a new mode by which, by direct analysis, not only the carbon, oxygen and hydrogen in an organic substance can be determined, but also the chlorine, bromine, sulphur, iodine, phosphorus, and probably also the nitrogen therein contained. The organic material is brought to combustion with oxide of mercury, the results of which process are water, carbonic acid, and mercury. The two former are weighed in the ordinary manner. The weight of the mercury formed serves to determine the quantity of oxygen due to combustion, by subtracting which from that contained in the carbonic acid and the water, the total amount of oxygen existing in the substance submitted to elementary analysis is found. If, however, the body under examination contains chlorine, bromine, or iodine, these elements combine with the mercury set free, and are determined by weighing. Sulphur and phosphorus combine in the state of sulphate and of phosphate of oxide of mercury.—*Science Record.*

Solidification of Nitrous Oxide.—According to Wills, nitrous oxide may be easily solidified by causing a rapid current of air to pass through the liquefied gas. Differing in this respect from carbonic acid, nitrous oxide may be kept liquid for some time in open vessels. Carbonic acid solidifies as soon as it escapes from its containing reservoir, because the tension of the vapor of the solidified acid, even at the moment of its formation, is considerably superior to atmospheric pressure; while liquid nitrous oxide attains—133° Fahr. and solidifies at—146°, so that the tension of its vapor is weaker than one atmosphere. The density of the liquid protoxide at 32° Fahr. is equal to 0.9004; its coëfficient of dilatation is very considerable. It is insoluble in water.—*Ibid.*

A Phenomenon of Capillarity.—A curious experiment, due to capillary attraction, was described at a recent session of the French Academy of Sciences. It consists in placing in a flask a small quantity of bisulphide of carbon, and inserting in the liquid a small tight roll of filtering paper, which passes up through a hole in the cork. Owing to the porosity of the paper, the bisulphide ascends; and on coming in contact with the atmosphere, evaporates very rapidly. A temperature is thus produced of very nearly 0° Fahr., under ordinary circumstances. The water held in a vaporous condition in the air is consequently condensed and precipitated in the state of hoarfrost, which, with the bisulphide, forms, it is said, a peculiar hydrate, which is deposited on paper in a white layer. As new quantities of bisulphide are continually supplied, the phenomenon continues until a mushroom-shaped excrescence, perhaps an inch in height and broad in proportion, surmounts the flask.

MM. Dumas and Chevreul suggest that this may point to the explanation of certain geological phenomena, such as ferruginous and calcareous concretions, of which the forms are identical with that of the artificial stalagmite described.—*Ibid.*

New Explosive Compound.—Messrs. Noirbin and Ohlson, of Stockholm, state that nitrate of ammonia is not ordinarily considered as an explosive of much power; but they have discovered that, if suddenly highly heated, as by the intense heat of an explosion, great force is exerted by an explosive of which this forms one of the ingredients, and they therefore propose to form a compound of eighty parts of the nitrate of ammonia, six to eight parts of coal (both finely pulverized), and from ten to twenty parts nitro-glycerine, which will form a pasty mass that may be made into cartridges. The explosion of the nitroglycerin will generate sufficient heat to make the nitrate of ammonia a powerful explosive agent.—*Ibid.*

Re-agent for Boracic Acid.—The flame of illuminating gas, says M. Bidaut, is a very delicate reägent for boracic acid. If a solution of the acid in water in the proportion of 1-2100 be boiled and the flame placed in the vapor, a green tint in the light will be plainly visible, and will become more apparent as the concentration of the liquid advances. This effect is more strikingly obtained by directing the flame upon a minute crystal of the acid, placed upon a piece of porcelain. A magnificent green light will be produced.—*Ibid.*

Rapid Filtration.—A simple contrivance, acting upon the same principle as Bunsen's filter, has been proposed by E. Fleischer. A wide-mouthed bottle is closed with a rubber cork twice perforated; into one of the perforations a funnel is fitted, while a short glass tube, bent at a right angle, is inserted into the other, and lengthened by means of a piece of rubber tubing with spring-clamp attached. The filter is capped with a small filter, then inserted and well moistened so as to rest against the funnel; afterward, the liquid to be filtered is poured upon it, and the air in the receiving-bottle rarefied by sucking through the rubber tubing, which is then closed by the clamp.—*Ibid.*

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

"Judex damnatur cum nocens absolvitur."

ON THE ACTION OF PERSPIRATION ON SOME OF THE METALLIC SALTS—CONSIDERATIONS ON THE CHARACTER OF PERSPIRATION, AND OF THE SUDORIFIC GLANDS—ANALYTICAL REVIEW OF A WORK PUBLISHED IN THE "LYON MEDICALE." By DR. P. AUBERT. From "La Tribune Medicale," Paris. Translated for this Journal by C. S. FENNER, M. D., Louisville, Ky.

The application of the hand to sheets of paper impregnated with nitrate of silver, proto-nitrate of mercury, or divers other substances, enables us to obtain impressions. These imprints, that we call sudorals, in order to recall the mode of their formation, present two types. First, pointed imprints, produced by the hand cleanly washed, in which each point corresponds to a sudorific gland. Second, linear impressions produced by the unwashed hand, the lines of which correspond to the papillary ridges. The possibility of obtaining these imprints constituted a new method of exploration of the sudorific operations, and of the cutaneous surface. The application of this method to the study of some theoretical questions, permits us to establish the following propositions: 1st. Insensible transpiration is made exclusively by the sudorific glands. 2d. The moisture is due not only to the incessant emission of perspiration, but to the presence of a fatty residue, and above all, deliquescent and alkaline, left by the evaporation of the former. This residue, by its deliquescence, retains the humidity, and presents a too complete dryness; by its alkalinity it keeps the epidermic surface in a soapy and supple condition. It is only the surface of the epidermis, its scurfy and porous layer that is thus impregnated, but that is sufficient. The residue remaining after alcoholic treatment of sweat, is exclusively composed of lactates and alkaline sudorates; this residue is very deliquescent; it is then to these salts, and more particularly to the chloride of sodium that it is necessary to attribute in the sudoral residue the property of drawing and retaining moisture. The perspiration loses, from the first drops evaporated, its acid reäction, which gives place to a strongly alkaline reäction. Within the body, the urine, after its passage from the kidney, has no useful role; the perspiration, after passing out of the sudorific ducts, and even after its evaporation, has still a role to play; a function to fulfill; it is more than a liquid purely excrementitial, since its function succeeds its excretion. The dryness of the skin in fever patients appears to be connected with numerous causes; not only the perspiration is diminished in quantity, but it is probable that it is less charged with deliquescent salts, and that the chloride of sodium in particular, suppressed or diminished in the nourishment, is diminished at the same time in the perspiration as it is in the urine. The utility of these tempering salts (salts alkaline with organic acids) may be examined from this point of view, which will serve perhaps to complete the theory of their action. These considerations lead us to conceive the possible utility of creating in febrile conditions an artificial moisture, by employing spongings, or baths with water, to which is added a certain proportion of deliquescent salts. 3d. The sudorific glands, independent of their other functions, ought to be considered as a secreting apparatus annexed to the organs of touch. The secretion of perspiration has a triple role; a depuratory action by the elimination of the different residues of organic combustion, an action of equalization of the temperature, by its evaporation from the surface of the body of a variable proportion of the liquid, and finally it serves to keep the epidermis soft and supple. This suppleness is indispensable, in order that the exterior contact may be exactly transmitted to the special nervous organs, and faithfully perceived by them. This last consideration gives a signification and a sense to many anatomical and physiological facts of which it is difficult to comprehend their importance by regarding them from any other point of view. Among these facts we will mention:

A.—*The Inequality of the number of Sudorific Glands in the different regions, and the predominance of this number in the Palms of the Hands and in the Soles of the Feet.*—Sappey estimates the number of sudorific glands at a little over 2,000,000; Krause at 2,381,000. But the number of these glands is much more considerable in the palms of the hands and in the soles of the feet; these regions are the essential seat of tact which constitutes the touch. The necessity of a thick epidermis on the feet and hands is very clearly conceived; but in order that this thickness may not be an obstacle to the acuteness of perception, it ought to be allied to special conditions of moisture and suppleness.

B.—*The Inequality of the secretory activity of these Glands in the different regions.*—The parts of the body where the secretory activity is generally the most considerable, are the feet, the hands, and the head, that is to say, the extremities. Again, the inequality of these sudorific glands in the different parts of the palmar face of the hand is evident; the parts most rich in glands are the ends of the fingers, the cushions situated between the lines of flexion of the fingers and the origin of the former, and to the thenar and hypothenar eminences. The most depressed portions of the hand and the points of insertion of the fingers, alone sometimes give little or no imprint on the reäction paper. The surface of the first phalanx secretes a good deal more than the surfaces of the second and third phalanges, which often give no impression. The cushions corresponding to the continuation of the spaces between the fingers and the thenar and hypothenar eminences secrete a little more than the adjoining parts. It is scarcely necessary to say that the ends of the fingers are the essential seats of the touch, and that above all, the sudorific residue, incessantly removed by contact with other substances, needs to be renewed.

C.—*The Persistence of the Secretion in the Feet and in the Hands, and the Issue of the Sweat in Spite of the Pressure, and the Utility in this Point of View of the Spiral Projection of the Ducts.*—The contact of objects in the exercise of touch can not be made without pressure, sometimes quite strong, exercised on the surface of the skin. This pressure in no manner prevents the continuance of the secretion of the perspiration. In the hands and in the feet the perspiratory canals, from the point at which they enter the epidermis, are formed in spirals, and they do not reach the surface until they have made from ten to twenty spiral turns. This disposition, which perhaps also has other uses, permits during pressure the spiral turns to approach each other without producing angular deviations that would give rise to momentary occlusions of the ducts. On the contrary, in other parts of the surface of the body, even when the secretion is a little excited, we are often unable to produce any imprint, which perhaps may be attributed to the mobility of the skin on the subjacent points, perhaps to the more straight line disposition of the secreting ducts. These two conditions easily facilitate the angular bending of the ducts, and create a momentary obstacle to the issue of the perspiration.

D.—*The Relation of Proximity of the Sudorific Glands with the Papillæ*—In the palmar and plantar regions the excreting ducts traverse the ridges created by a double range of papillæ, and open on the little unequal plateau which forms the surfaces of the crests. None of them open on the intermediate furrows between the ridges. In these regions there is an intimate connection between the projection and opening of the perspiratory ducts and the distribution of the papillæ. Is it not reasonable, and does not this intimate connection give support to the considerations previously stated, and accentuate their signification? On other parts of the body the papillary elements and the perspiratory organs appear scattered; but it is probable that a histological study directed in this sense would establish the existence of the same relations of contiguity between these two series of organs on all of the cutaneous surface.

E.—*The Acidity of the Perspiration from the Moment of its Secretion and the Alkalinity of its Residue.*—The agents that give to the perspiration its acid reäction are volatile, since the sweat becomes promptly alkaline by evaporation. The most important among them appear to be carbonic acid and some fat acids. Their presence seems certainly to be connected with a depuratory role, since these acids and the carbonic in particular are the products of organic combustion, which ought to be thrown off from the system. Is this the only function? If we bear in mind the injurious action that even the weakest alkalies exercise on the soft cells of the layer of Malphigi, and that most of the acids better preserve the integrity of form and contour of these cells, we may suppose that the presence of acids in the perspiration is useful to the preservation of the anatomical integrity of the epithelial cells and of the sweat ducts. At the surface of the epidermis the cells of horny layer are hard, resisting, and not easily acted on. The alkalinity of the residue then loses all its inconveniences, and only presents some advantages.

Trousseau gives as a theory of exanthematous perspiration, independently of the increase of the function, which is legitimate, the presence in the secretion of a morbid principle coming from the organism of the patient. Can we not apply in a great number of these exanthematous diseases, with causes modified, the theory of acid or alkaline insufficiency, induced by abundant transpiration? There is in the winter a smaller proportion of alkaline salts in the sweat, from which results a smaller alkaline residue. It is probable the perspiration induced by heat on the body in repose ought to be more definitely alkaline than that induced by muscular exertion, which ought to be charged with the residue of muscular combustion.

It is thus explained, that in cold and temperate climates the sudoral eruptions are rarely seen in persons who remain in bed, and that the excessive heat of warm climates is necessary to cause these eruptions in healthy subjects. All of these considerations which have been given, some demonstrated, others hypothetical, although logically deduced, concur in establishing the truths of these propositions: that the sudorific glands ought to be considered as a secreting apparatus annexed to the organs of touch.

NOTE.—No space this month for other reviews.—ED.

MISCELLANEOUS.

"Non omnes eadem mirantur ament que."

LIFE OF AGASSIZ.

Louis John Rudolf Agassiz, of French descent, (a Huguenot,) was born in Motiers, Canton of Fryburg, Switzerland, near Lake Morat, May 28, 1807. His family had been driven from France by the revocation of the edict of Nantes. For six generations his lineal ancestors were clergymen. His father was pastor of St. Inier, and removed to Motier to escape the severity of the climate. His mother was Rosa Mayor, the daughter of a physician of Vaud. She educated him until he was eleven years of age, when he was sent to the Gymnasium of Bienne, Canton of Bern. Here he studied natural science, during his vacation, under the direction of Fivaz, a clergyman. After four years' study at Bienne, he entered the College of Lausanne, where, after two years of study, he went to the medical school of Zurich, in 1824, remaining there two years. He prosecuted his medical studies at the University of Heidelburg, studying anatomy and physiology under Tiedemann, zoölogy under Luckhart, botany under Bischoff. In 1827 he entered the University of Munich. Here he studied vegetable physiology and anatomy with Martius; living with Dollinger, he studied with him animal embryology; mineralogy with Fuchs, and philosophy with Schelling. Soon after, the Austrian and Bavarian governmentss ent a scientific expedition to Brazil, with Martius as one of the chief naturalists. He entrusted the icthyological department to Agassiz, still a student. The accomplishment of this work placed Agassiz in the foremost rank of naturalists; it was this work which diverted him from the study of medicine. Soon after this, he published his work on the "Natural History of the Fresh-water Fishes of Europe"; his second great work. At this time he received, at Erlangen, the degree of Doctor of Philosophy, taking in the same year at Munich the degree of Doctor of Medicine. His thesis was on the following subject, "Femina Humana Superior Mari." He was, of course, not married at this time. Soon after, he went to Vienna, and after studying severely in the museum there, he devoted himself to the study of the fishes of the Danube and the fossil species in the fresh-water deposits of Switzerland and Bavaria. After seven years of study of fossil fishes, Agassiz commenced the publication of his work on this subject. This work was continued for ten years, being completed in 1844.

During these studies he visited most of the museums of Europe, and was allowed to carry away with him and to keep for study, for a period of from five to ten years, the most valuable specimens of eighty public and private museums. He next visited Paris for study, becoming intimate there with Humboldt (then in Paris) and with Cuvier. Agassiz's drawings so pleased the great Cuvier, that the distinguished naturalist offered to him all the material that he had collected.

Some time after the death of Cuvier, in 1832, Agassiz returned to Switzerland, on the invitation of the citizens of Neufchatel, and accepted the Chair of Natural History in the College there. It was through the liberality of Humboldt that he was enabled to begin the publication of his great work on fossil fishes. The geological deductions from these researches were remarkable. As the species differed from those now living, and differed from each other in different stages of the same formations, Agassiz was led to the conclusion that the globe had been peopled by a series of creative acts; moreover, as certain species occur in certain regions and not in others, he was led to the further belief that these creations were not only successive, but local; man alone, and the animals associated with him, forming the exceptions to this general law. He believed that this wonderful series of creations manifested the existence of an omniscient creator. Species, as the result of his studies, do not pass into each other, and are connected only in the order of time. It will be perceived that Agassiz was a sincere believer in the existence of God; that God is the *Great Creator;* that separate species of His creation appertain to separate periods of geological formation, the grand aggregate of these species finally culminating in the creation of man.

It is wonderful with such facts in regard to his written beliefs and his enduring labors, that he could ever have been so maligned as to be classified with the skeptics of his time.

In later years, the Universities of Edinburgh and Dublin conferred upon him the degree of LL. D. Sir Robert Peel, Lords Egerton and Ellesmere, the geologists, Buokland, Owen, and Murchison, were his intimate friends.

In 1831 his "Prodromus of the Echinoderms" appeared. He was still collecting material for his great work, "The History of the Fresh-water Fishes." To secure correct representations of them, he established a lithographic manufactory, which not only bankrupted him, but entailed upon him a heavy debt, which he only discharged after many years of hard and painful labor. From 1836 to 1845, he spent his summer vacation in the Alps, in the study of the glaciers and their geological results. He satisfied himself that the wonderful transportation of huge boulders by glaciers is a demonstrable fact.

As the result of these unique labors, during which he established for eight summers his headquarters on the glacier of the Azar, he announced to the savants of Europe his celebrated glacial theory. Subsequently, he studied the history of the glaciers of North America.

In 1846 he visited Boston to deliver there a course of lectures, by invitation; he frequently had audiences of 2,000 of the most cultivated in science and letters. He subsequently delivered this course of lectures in New York, Philadelphia, and Charleston. He was, at the invitation of Mr. Bache, of the U. S. Coast Survey Service, some time engaged in the prosecution of his studies, enjoying the advantages of this service for the purpose.

In 1847 he was elected Professor of Zoölogy and Geology of the Scientific School of Cambridge—this position he held at the time of his death. During this period, he delivered several courses of lectures in the chief cities of the Atlantic coast. He published his well-known school work, the "Principles of Zoölogy," and was always engaged in a series of laborious original investigations.

In 1852 he accepted a professorship of Comparative Anatomy in the Medical College of Charleston, S. C., holding this position for two years. It was here that the writer had the great pleasure of profiting by his lectures. He was elected a member of most of the Royal Societies of Europe, received the Monthyon prize for experimental physiology, Cuvier prize, Wollaston medal, and the medal of merit from the King of Prussia.

In 1865 he, with six assistants, made a geological exploration of Brazil, bringing home with him the splendid collection now in the museum of Cambridge. He returned to the United States in 1866, and the narrative of his interesting journey was written by his wife. Since that period, he made geological explorations of the Rocky Mountains, and in 1871 made a voyage around Cape Horn, for the purpose of studying oceanic faunæ. On his return, and up to the period of his death, he discharged with great assiduity and fidelity the duties of his professorship at Cambridge. He was actively engaged in the discharge of his herculean labors at the time of his fatal sickness. He died December 14, 1873.

Though not a practical physician, he was, in the true sense of the word, one of the grandest and greatest physicians that the world has ever produced, and as such, deserves this inadequate tribute in a Journal exclusively devoted to the Medical Profession.

NOTE.—Acknowledgment is made to the Messrs. Appleton for a large portion of these facts.—ED.

MEDICAL NEWS.

'Nulla dies sine linea."

Another Medical College has been organized in New Orleans under the title of the Medical Department of Charity Hospital. The Faculty is composed of gentlemen of ability and experience. Texas also makes the experiment of a new College at Galveston.———Dr. ——— desires to sell his practice at Caseyville, Kentucky. It is lucrative, and is offered on good terms. Correspondents should address the editor of this Journal in regard to it.———*Medical Registration Law of Missouri.*—The following is a synopsis of the present registration law of Missouri, as published in the "St. Louis Medical and Surgical Journal: 1. "It is made unlawful for any one to practice medicine or surgery in this State who shall not have first received the degree of doctor of medicine from some medical college or university duly established under and by virtue of the laws of the State or county in which the same is situated. 2. Every person wishing to commence the practice of medicine or surgery in this State, is required to file a copy of his diploma in the office of the county clerk of the county in which he resides, to be sworn to and subscribed by the party filing the same, and thereupon the county clerk registers the diploma, for which a fee must be paid. 3. Persons practicing, or who shall commence to practice, before the 1st of September, 1874, shall register without diplomas. 4. The penalty for non-compliance with the act, upon conviction, is fixed at not less than $25 nor more than $2,500; and the fact that such person has not filed his diploma is a sufficient defence in any action which he may bring to recover his fees for professional services.———*Priority in Aspiration.*—The "Medical Times and Gazette," in the course of a sketch of the various uses to which the aspirator may be applied, gives the following credit to an American surgeon: "Probably the first to successfully use a syringe for tapping collections of matter was Dr. Bowditch, of Boston, and he was thereby enabled to convert a very fatal malady—perinephritic abscess—into one easy of relief. But undoubtedly it is to Dr. Dieulafoy, of Paris, that we are mainly indebted for developing the method, which he has done with a skill and boldness meriting the highest praise; all the more so, inasmuch as he seems to have been ignorant of much that had been done before him."——*Important, if True.*—According to a late number of "Les Mondes," two French chemists have succeeded in converting the nitrogen of air into ammonia without expense, without chemical manipulation, and even without human intervention, by the use of certain bituminous schists. These schists contain all the elements necessary for the growth of plants in much larger proportion than farm-yard manure. Sulphide of carbon is produced at the same time, and is said to be the only remedy for the Phylloxera.———*Buttermilk.*—A paper was recently read before the French Academy, extolling the virtues of buttermilk. It claims that this article contains an acid that destroys the incrustations which form on the arteries, cartilages and valves of the heart, and states that a constant use of buttermilk will free the system from troubles which invariably cause death between the seventy-fifth and hundredth years of a man's life!!!—*Ex.*———Dr. George Derby died June 20, of abscess of the liver and peritonitis. He was Professor of Hygiene in Harvard Medical College, and Secretary of the Massachusetts Board of Health. In both offices he is said to have been most efficient.—*Ex.*

EDITORIAL.

"Nullius addictus jurare in verba magistri."—Hor.

Volume Eighteen.—This number constitutes the commencement of volume eighteen. Its increased size and the arrangements made for securing the excellent likeness of Agassiz have somewhat delayed its issue. Some delay has also been experienced in waiting for full details of the late meeting of the American Medical Association. These delays are, of course, unwelcome to all parties, but where, as the result, subscribers obtain a larger and more complete number, it is hoped they will regard the enlarged volume as sufficient reparation for the delay occurring in its issue. Such are the facts. The new volume is commenced under the best auspices. Arrangements are now being made for securing great improvements in the Journal, and these arrangements will soon be perfected. The subscribers may feel assured that every possible effort will be made to make more acceptable a work which they have always so faithfully and kindly sustained. The friends of the work are, at this appropriate time, sincerely thanked for their support, and the editor asks from them a continuance of that active coöperation and practical aid which they have so actively and unfailingly given.

THE AMERICAN MEDICAL ASSOCIATION.—The late meeting is, it is generally conceded, the most successful that has occurred since the close of the war. It was more than a success. It was a triumph. The action of the Judiciary Council (recommended for years by this Journal) worked with great efficiency and satisfaction. The Association is now freed from the disturbing elements which not only came near destroying its career, but its character. Personal matters, ethical, controversies, etc., of all kinds, are now no longer to disgrace the proceedings. The secular press now praises and admires, where it formerly reprobated and ridiculed. This is a great and grand improvement. The Association has become a scientific Body. In this respect the last meeting was a great improvement on those of recent years; and the work arranged for future years will make this welcome improvement continuous. The papers are of real value. Some were read which were not valuable. It taxed the ingenuity of the Sections to know what disposition to make of them. The bright idea occurred that these inferior papers should be sent to the medical journals. The humor and satire of the suggestion were excellent, and the action was an evident return thrust for the hits which the journals have bestowed on the Association for the general worthlessness of its Transactions. No offence will be taken, but when American journals commence publishing papers too inferior for admission into the Transactions, "the end of all things will be near at hand." It is suggested that no papers be allowed to be read at the meeting of the Sections until a suitable committee has examined them. It is really intolerable that Sections should be bored by any one who has the temerity to read foolish and worthless papers. This committee should be appointed by all means. The Detroit physicians have distinguished themselves by their warm hospitality and energetic coöperation. Dr. Brodie, the chairman of the Committee of Arrangements, deserves the greatest credit for his untiring and most excellent work. It may be accepted as a fact that Louisville will do all that is possible to make the next meeting harmonious, effective and pleasant. It is said that this Journal has been inimical to the Association. It has really been one of its best friends. It has pointed out errors and abuses, and has aided in correcting them; it has suggested improvements, and has aided in securing these. It used the most strenuous efforts in 1869 to secure a full meeting at New Orleans, when the old war feeling was so high that three-fourths of the Journal subscribers were opposed to the course it adopted. This is simply the truth. The Journal asks justice; nothing more. It has never been an enemy of the Association, but an open critic and true friend. It will give this Body strong and uniform support, whenever this is deserved.

CONVENTION OF CONFEDERATE SURGEONS.—This meeting occurred on the 21st of May. It was attended almost exclusively by the physicians of Georgia. The President, Vice-President, Secretary, Treasurer, and committee to report business, were all Georgians; the Nominating Committee of Nine consisted almost entirely of Georgians; six in nine. This may have been making a merit of necessity (if the joke can be pardoned by Georgia friends), but it does seem that the visitors from other States might have been made "distinguished visitors" on such an occasion. Indeed, the medical men of that great State must, immediately before going to Atlanta, have read the celebrated story of La Fontaine, in which he describes the feast of the Lion and his friends, they having jointly provided it. "I will take the first share," said the Lion, "because I am King; and the second share, as a partner with you, in providing it; and the third share, because there is no one here great enough but myself to dispose of it; and as there are only three shares, I now propose, my friends, that we adjourn." The illustration is robbed, however, of its severity by the fact, that Georgia was almost the only State represented; her playing the rolé of the Lion at the feast was excessively ludicrous; but the most ludicrous fact about it is, that so unprecedented an action was absolutely necessary. Seriously speaking (if one can be serious under such circumstances), there were about thirty or more gentlemen present; some fourteen Vice-Presidents were appointed, and a few Secretaries elected. They only elected one President!!!; one Treasurer was found to be sufficient. Officers who resigned from the old army and navy are all made honorary members; what in the Virginia State Medical Society are termed Hon. Fels. Byron has said, that the acme of bitterness is to be shot on the battle-field and have your name misspelled in the "Gazette" next day; but what is such an outrage, when compared with that of losing rank and position in two services and then to be made an Hon. Fel. of that remarkable Body which met at Atlanta last May?

It is lamentable that a meeting with such a name should have proved so utter a comedy. Yet the result could not have been otherwise. There is no necessity for such an organization, and a meeting for the purpose (as was predicted) can not be obtained. Socially, it would be delightful to meet dear friends of the camp-fire, the field, and the hospital, but who can leave home and business to expensively journey for even such a purpose? There was one excellent act performed, the election of the venerable Surgeon-General of the Confederate service, Dr. S. P. Moore, President. The next meeting, it is announced, will take place at Richmond, Va., July, 1875; where, if there be a real feast, this will be differently shared and divided; for Georgia physicians will insist that this be done. May there be a full meeting on this classic spot, where old friends may once, at least, take one "cup of comfort yet, for the Days of Auld Lang Syne."

GREAT INJUSTICE TO THE MEDICAL DEPARTMENT OF THE ARMY.—By the law just passed by Congress, the Staff Corps, or Medical Department of the Army, is much reduced. It reduces the medical purveyors from four to two, and the surgeons from sixty to fifty, and leaves the assistant surgeons at one hundred and fifty; what it has been for years.

Two vacancies will have to occur among the surgeons, either by death or resignation, before Drs. Woodward, Otis, or any other assistant surgeon can be promoted to the rank of surgeon, This will probably require from four to six years. The great injustice of the law in this regard will be apparent, when the Profession reflects that Drs. Woodward and Otis are not surgeons, but simply assistant surgeons; and yet they have, from the time they entered the army, been acting and doing the duties of surgeons, and since the close of the war no medical men in the country have been doing more important work, or doing it better than they. Hereafter, it will require young men entering the army as assistant surgeons to serve from eighteen to twenty years before they can hope to be promoted to the rank of surgeon. The question of economy so controlled the action of Congress as to make them cruel, if not unjust, to this deserving branch of the army.

Every member of the Medical Profession feels a painful disappointment; and each one should continue to exert himself with influential persons (and particularly with members of Congress) in demanding future legislation which will give the Medical Staff rank and pay commensurate with the other staff corps in the army and navy.

The Medical Department of the Army represents a body of cultivated gentlemen, and very generally accomplished physicians. This Body is an ornament to the Government of this country, and it is entitled to the highest consideration. It asks the barest justice, and it should have this promptly and fully.

A CORRECTION.—On account of the delay in the issue of this number, there is a very erroneous impression existing among a few that this Journal is being neglected on account of the time given to the Weekly. This is a serious error. The two Journals will not conflict with each other in any manner whatever. The Weekly will be issued punctually on every Saturday; the Monthly during the first week of each month. This number has been delayed on account of its unusual size and the preparations necessary for completing the picture of Agassiz, which adorns it. So far from allowing the Monthly to be injured or delayed, arrangements are now being actively made for improving it in many respects, and for securing its punctual issue.

Every delay gives the subscribers more reading matter and a more valuable Journal.

BREVITIES.

All are requested to read the defense of Dr. Frank Hamilton made by himself. It is published under the caption of original correspondence. It is a fact that the meanest of physicians generally escape criticism, while the best are most maligned. Ill feeling, cynicism, and envy, like death, love a shining mark. Fortunately, good character, like virtue, surely receives its own reward; its own defense; its final triumph. Hamilton needed no defense, but having made one, it is complete. ———The editor of the "Virginia Clinical Monthly" is sorely disturbed about extracts being made from his journal without credit being given him. When he has published a journal for nine years, instead of nine weeks, he will, like all old editors, regard such matters philosophically. No honorable man fails to credit correctly, when he remembers correctly the source of an extract.———This Journal acknowledges with gratitude the complete file of the Transactions of the last Texas State Medical Association; sent by Dr. A. R. Kilpatrick, of Navasota, Texas.———In Dr. Chapman's article, on page 749 and second line, for "vessels," read muscles; fourteenth line, for "lymphatic," read sympathetic.———In the list of contributors published with the index in the last number, the name of Dr. H. F. Barnes was accidentally omitted.

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ORIGINAL COMMUNICATIONS.

"Qui docet discit."

ART. I.—REMARKS ON THE YELLOW FEVER EPIDEMIC OF MEMPHIS, TENN., IN 1873. By C. HAPPOLDT, M. D., formerly of Charleston, S. C.

In the brief space of this article, it will be unnecessary to dwell upon the natural history or geographical distribution of yellow fever, discuss its pathology, or comment upon its infectious or contagious nature, as these have been repeatedly done by truthful and competent chroniclers, and are incorporated in our medical literature. Those who have written upon the late epidemic in Memphis, have accounted for its origin and traced its spread, leaving for further elucidation some points on diagnosis and treatment, not exhausted by their investigations.

The home of yellow fever is generally conceded to be the West India Islands and the adjacent coasts of North and South America. Although occurring every year in some of these islands or Central America, it may prevail in any of the cities within the tropics, in low-lying situations, where the daily average temperature is above 70° or 80°, with a high dew-point of several months' duration; and so often has it prevailed in Charleston, Savannah, and the Gulf cities, that it has been generally believed that these cities are within its peculiar zone; though it is not established that they are, unless the immunity from the disease, which their native-born population enjoy, be received as a test.

Yellow fever is peculiarly a disease of cities, where large numbers of persons are crowded together, and effete animal matters are allowed to putrefy in the atmosphere; but it is not proved that filth, garbage, or noxious gases from rotting animal or vegetable matter can any more produce yellow fever than they can small-pox; though it is almost certain that they do so vitiate the atmosphere as to render it a proper nidus for the reception and proliferation of the essential epidemic germ, be it what it may; whether of fungoid growths, or germinal masses derived from normal cells, or analogous to yeast or other ferment, which, by virtue of catalytic action, is capable of producing deleterious changes in the constituents of the body.

Assuming that all the destructive changes which the blood undergoes in yellow fever are due to the contact of certain infinitesimal particles, it may be readily conceived, that after entering the organism and affecting its vital constituents, they may reproduce themselves, and, from their extreme minuteness, permeate the tissues, and escape from it by the skin, the breath, and the excretions. When without the body, they may continue to multiply themselves indefinitely, if the surrounding atmosphere be in a favorable condition; and floating about the air, impregnate water and food, and attach themselves to clothing, bedding, or other material, and so admit of transportation, gaining access to the bodies of persons suitable for their reception; or these particles may lose a portion of their contagious vitality and be no longer capable of originating other germs that can propagate the disease, or being introduced into localities not favorable to their development, occasion only a few sporadic cases.

But we are not assured that all the germs perish, after the cessation of their action, by the intervention of cold weather. Many may but hibernate in sheltering situations, to be revivified and aroused into action by a renewal of warmth and other favorable circumstances, if the necessary meteorological, local, and personal conditions are present. Therefore, it is advisable to disinfect every suspected locality, and remove all causes which experience has proved effective in the development of the disease, to prevent a recurrence of a similar epidemic.

Though the conditions of heat and humidity, and even filth, do exist in many of our cities during the summer months, yet only those on the coast have been generally visited by yellow fever. Neither can malaria be concerned in its production, though it may complicate it and intensify its effects. Galveston, Pensacola, and Charleston, though situated in malarial regions, are notably free from these fevers within their proper limits. In the vicinity of the latter city, where swamp-fevers of every grade are rife, yellow fever is unknown; but in the city proper, singularly free from malarial fevers, yellow fever finds a congenial abode. It is there that yellow fever appears in its typical character, and can be studied without the embarrassing intermixture of hybrid varieties.

Not until 1853 did the yellow fever spread into the interior of the country, and then chiefly along the navigable streams flowing into the Gulf of Mexico; and becoming epidemic in the larger towns only, where density of population and uncleanliness existed. In country dwellings and villages, in the immediate vicinity, but few sporadic cases occurred. During every epidemic of yellow fever have persons left infected districts, some taking the disease with them, or having it after their arrival beyond the reach of its influence, and yet not spreading the disease.

The inland towns of South Carolina have never been invaded by it, though having daily intercourse with Charleston, where it is so often epidemic. And Wilmington, N. C., connected with Charleston by railroad and steamboat navigation, and having been frequently resorted to by refugees during the prevalence of the fever, was never visited by an epidemic of it until

1862, when it was introduced by the blockade-runners, at which time the place was in a very bad sanitary condition.

Norfolk, Va., although having had sporadic cases on many previous occasions, felt the effects of an epidemic only in 1855, when the Ben Franklin opened her hatches in that port.

Montgomery, Ala., which suffered severely last summer, had been, with the exception of sporadic cases in 1853, 1854, and 1855, exempt from an invasion; and the disease of last year was clearly traced to Pensacola, where it was brought by the Golden Dream from Havana.

For several years yellow fever of an unusually malignant type was reported as occurring in the West India Islands and along the coast of South America as far as Buenos Ayres; when, in 1853, its course was turned northward, and obtaining an entrance at New Orleans, scattered its desolating influences throughout the lower valley of the Mississippi, but spending its fury chiefly in the Crescent City and the larger towns below Memphis. Many persons sick with it were brought here and treated in the hospitals and in private families without infecting the city.

In 1855 and 1867, the yellow fever prevailed to some extent in Memphis; its origin was traced to importation from New Orleans, but it did not spread far from the points of its introduction.

Memphis was becoming rapidly built up—increasing in extent and population—without adequate provision being made for the removal of the noxious matter which necessarily accumulated in its most densely populated districts. Being admirably situated for natural drainage, no sewers were deemed necessary, and nothing was done to prevent the increasing sinuosities of the Bayou-Gayoso which, in dry seasons, would become choked up with every kind of ordure, garbage, and excrementitious material, of which it was made the receptacle. In 1873 it had acquired the proportions of a large city, with the sanitary conditions of an overgrown village. Its numerous floating population and poorer classes were crowded together in ill-ventilated tenement houses, with the undrained courts, alleys, and streets in the vicinity, serving as receptacles for every kind of filth, which such a population would gather around it. The precincts of "Happy Hollow" and "Pinch" had acquired their maximum degree of endurable filth, and considerable masses of putrid earth had been upheaved and exposed to the sun in the adjacent old navy-yard, where stagnant water was allowed to remain; accumulations of decomposing matter existed around the saw-mills and oil-works, and virgin soil had been exposed during warm weather, to lay down the water-pipes; and lastly, numerous swine roamed at large, rooting, from preference, in the foulest places, disengaging its most noisome gases. These conditions, together with surcharged privy-vaults, and defective cisterns in the upper city, may be mentioned as sufficiently operative to produce an atmosphere favorable for the reception and proliferation of the yellow fever germ, which, when introduced, assumed a malignancy proportionate to its admixture with the paludal element that was active at the time. Memphis being without the yellow fever zone, its native population enjoyed no immunity from the disease; therefore, there were but few not susceptible by acquired acclimation, or from already having had an attack; and the personal condition of fear in those who could not get away, producing that psychical depression which is, perhaps, the most operative cause in attracting the disease to the persons so affected, increased the numbers liable to be attacked.

The official mortuary reports give 1,255 deaths from yellow fever; also, 416 additional deaths from so-called other causes; but we may reasonably infer that from one-half to two-thirds of these deaths were from yellow fever. The President of the Board of Health, from his stand-point, thought that there were, at least, six hundred other deaths in the city not reported to the Health Officer, though the recording officer estimated the number to be most likely four hundred. From these official statements we may assert that about 2,000 persons died from the epidemic disease. It is estimated that about 15,000 persons remained in the city during the epidemic, 10,000 of whom were attacked with fever; therefore, the mortality was 20 per cent. of those attacked, and 13 1-5 per cent. of the whole number of the remaining population.

The returns made from Memphis and Shreveport to the U. S. Signal Bureau for the months of July, August, September, and October of 1872 and 1873, were tabulated with a view to see how far the conditions of a higher or more than ordinary average of heat and moisture, either held in suspension or precipitation, may have existed during these two years.* They show too slight a difference to warrant us in believing that meteorological conditions were operative factors in the origin or progress of this epidemic; and we must look to the personal material, neglecting the laws governing health and the sanitary condition of the city for furnishing the requirements for the production of the yellow fever of last summer.

Dr. Marable attended a case of yellow fever on Main street, near the Mississippi dépot, which terminated fatally with black vomit on the 5th of August. This patient had been in New Orleans, Pensacola, and Mobile, and was attacked after his arrival at home, on the 1st. No other cases occurred in the neighborhood; but from the symptoms presented, as well as from the fact that the patient had been in these cities where the yellow fever was prevailing, we are warranted in believing that this was a case of that disease.

It was not till after the 10th of August, when the steam-tug Bee landed two sick men in "Happy Hollow," that the yellow fever began to be recognized by the Profession. One of these men was taken to the station-house, where he died, without infecting the vicinity; the other stopped in "Happy Hollow," and died at the house of Peter Riley, who, himself, sickened and died with similar symptoms, as did subsequently all but one of his household. Other cases, presenting the same symptoms and generally terminating fatally, with icteric hue of the skin and black vomit, occurred in the surrounding locality. Dr. A. Crone, who attended these earlier cases, reported them as malignant malarial, though he mentioned to the writer that they were yellow fever. Dr. Crone himself was attacked on the 14th of September with bilious fever (having previously had yellow fever), and died on the 25th with a pneumonial complication.

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* Geographical Limits of Yellow Fever in the United States. By J. M. Toner, M. D.

The disease gradually spread over the whole area of "Happy Hollow" and the adjoining "Pinch," on the top of the bluff, where it found suitable local and personal conditions for its propagation. As the account of its spread has been carefully given by those who have written on the subject, no further notice is required here.

On the 13th of September, when the Board of Health officially announced the existence of yellow fever, two cases had already occurred on Madison street, beyond the bayou, terminating fatally. These persons had been within the infected district nursing the sick, immediately preceding their attack.

At this time many physicians denied the existence of yellow fever altogether, while others contended that some early cases, which we consider malarial, were genuine yellow fever.

From what I have observed of yellow fever epidemics in other cities, I am forced to the conclusion that this invasion was complicated with the various forms and grades of malarial fever, and accompanied with a great many cases of the simple ephemeral. The yellow fever and the paludal poisons attacked different individuals in a different order of succession, and in fatal cases it was often uncertain to which poison the result was attributable. I saw but few mild cases of yellow fever in "Pinch" and "Happy Hollow," while the reverse obtained in other portions of the city. In these infected localities, both the malarial and yellow fever cases were generally grave, and when complicated, were almost always fatal.

The first cases of true yellow fever, as it has ever been, terminated fatally; and those occurring afterwards throughout the duration of the epidemic, were more so in those localities offering the most suitable conditions for the propagation of the poison, and among that class of persons most susceptible to its influence and less able to resist its effects, than in more salubrious situations and among a class in a better sanitary condition.

The proportion of recoveries to cases in any one's practice, therefore, depended upon the area he visited and the class he attended, as well as upon the specific character of the disease he treated, and not upon the articles of the materia medica he prescribed, or the therapeutical processes he instituted.

For more than a quarter of a century has the Profession, within its zone, agreed that yellow fever is a *specific* disease, particularly distinguished from the *malarial*, originating from a *special* or *specific* poison, as does variola, scarlatina, measles, and cholera, and that it is *continuous.* And later, by authoritative writers, that it is *contagious* in the sense that the other specific diseases are—as one attack confers an immunity frcm a second; that it has *one paroxysm* with *two stages*, between which an interval may occur, considered by some as a third; and that it is *self-limited*, and can not be aborted by drugs.

Since the appearance of Blair's book, in 1852, in which we find a record of over four hundred observations on the average of the pulse in yellow fever during the days of the disease, have many observers regarded the regular decrease of the pulsations of the heart as peculiar to this disease, and to be produced by the direct specific action of the poison of the fever, similar to that produced by certain other poisons, as digitalis, veratrum viride, and the bites of venomous reptiles.

This depression of the circulation occurring during a high grade of fever, the temperature of which goes on increasing, while the pulsations are decreasing, occurs in no other fever, and is now recognized as a distinguishing characteristic by which it can be unerringly diagnosed.

To Dr. J. C. Faget,* and his colleagues in New Orleans, is the Profession indebted for more recent data corroborative of the above; and for the additional registration of the *exact* degree of temperature accompanying the march of the pulse; thus affording, as now, not only a sure means of diagnosis, but a safe guide to direct our treatment, and enable us to predict a correct prognosis.

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* Type and Specific Character of True Yellow Fever. By J. C. Faget, M. D., New Orleans, September, 1873.

The march of the pulse is remarkable in the uniformity of its direction; deviating in frequency from the very beginning. In some cases, after a few hours, it may be at 120, or higher, and begin at once to decline, falling more rapidly on the first than on the succeeding days, reaching about 80° on the fourth day; and if no complications occur, descend below its normal point on about the eighth day. The accompanying temperature does not correspond with the pulse, even in simple cases. It may begin descending on the first, second, or third day, or even later, and then descend parallel with the pulse until it becomes stationary, either at or below its normal standard. The supervention of the inflammatory process, or visceral congestions, may cause a divergence of the two lines, or both may ascend together. An attack of indigestion may cause the temperature to rise, while the pulse will be unaffected. Stimulants would produce a different effect.

The march of the pulse is not the same in all cases after the termination of the febrile paroxysm—viz., when the highest degree of temperature has been reached. In favorable cases it continues to decrease in frequency until its normal point is reached, the temperature descending *pari passu*. In serious cases its decrease may be checked by some complication, to be resumed after its subsidence, or it may increase in frequency for a time, but never become so frequent as at first, unless in fatal cases. In fatal cases it may pursue an ascending march from the beginning until it is too rapid to count; and may decrease for a while before assuming its upward march. The increased pulsations in the last stage of fatal cases have given rise to the impression that there is an intermediate stage, or remission, between the initial fever and terminal complication. But the terminal increase of the frequency of the pulse coïncides with a decrease of temperature. As the pulse continues rising, though losing its force, the patient is getting cold, which is contrary to what is observed in other fevers.

The temperature considered by itself, as has been before intimated, varies in different cases, and in consequence of certain complications. Its highest point may be reached a few hours after the inception of the disease, or as late as the third or fourth day; and it may register from a little above its normal standard to as high as 107° F. The sooner it declines, the milder the case; and higher the degree, the greater the gravity. Its march may be even more irregular than that of the pulse, and it may be as much affected by treatment. To be arrested in its descent, will show a complication; to be rising again is more serious, especially if the pulse accompanies its upward march; and, in some fatal cases, it may continue ascending until within a few hours of death, when it will abruptly descend, and continue descending even into *articulo mortis.*

It is in the incipient stages of yellow fever that we are able, in the majority of serious cases, to detect the most important diagnostic signs—viz., the *divergence* of the lines of the temperature and pulse (as we may imagine *lines* to indicate the *degrees* of temperature, and *numbers* of the pulsations), the march of the pulse *descending* immediately after its maximum has been reached; while that of the temperature *ascends* for one, two, three, or more days. When both lines begin to descend together on the first day, it is indicative of a mild case, requiring no treatment. When, after the temperature has reached its highest point, its line of descent is parallel to that of the pulse, a favorable prognosis may be given, the gravity of the case being determined by the time when the greatest divergence is reached. If the lines stop descending, we should look out for the cause. If divergence occurs, the pulse ascending while the temperature descends, the danger is very great. In the majority of fatal cases, the pulse descends while the temperature increases.

The tabulations of the numbers of the pulsations and degrees of temperature, though accurately made, require to be afterwards sifted and perturbing causes noted, before they can be considered a standard for diagnosis. Besides, it must be certainly known, by a correct appreciation of the assemblage of characteristic symptoms, that the cases observed are true, uncomplicated yellow fever before the most careful use of instruments can accomplish any useful result. Therefore, a record of the pulse and temperature of cases taken as they occur in any epidemic, though useful at the time, must be afterwards scrutinized, and the cases of true yellow fever arranged by themselves. Even then the modifications produced by medication must be taken into consideration; so that, after all, the record will be only approximative. For in no possible way can we ascertain the true degree of temperature or number of the pulsations, but by making a record of those cases which have been uninterfered with.

The duration of the yellow fever is stated by Dr. La Roche to be three days—"a febrile stage of about seventy hours' duration, more or less, is succeeded by a period of complete cessation of fever."

According to the observations made by Dr. Faget and others, during the epidemic of 1870, in New Orleans, "it should be 6 or 7 days ($6 + 24 = 144$ hours.)" In summing up the march of the temperature, Dr. Faget says, the fever "is characterized by a *unique paroxysm*, with an *effervescence* of one to three days, followed by a *defervescence* of four to seven days, without any stationary stage."

Dr. La Roche's voluminous work is a mere compendium, useful for reference only; he himself had no personal acquaintance with the disease; and, in our present state of knowledge, his work is of no practical value whatever.

At the bedside we must take into consideration all the perturbing influences which may be present, as the malarial; the effects of drugs and other medications; and the congestions or inflammations which so often occur. By the march of the pulse and temperature, these conditions may be detected when they appear; but they can not always be anticipated or foretold; and are often recognized, only to enable us to predict an unfavorable result.

I saw but few cases of the fever in which the effervescence and defervescence were continuous and uninterrupted. There were often pauses observed, and frequently more than one paroxysm with a correlation between the irregular march of the pulse and temperature. In many cases the pulse held up with the temperature from the beginning, and declined with it, showing that malaria was the active cause of the diseased action.

The yellow fever, as it appeared in Memphis last summer, did not follow the rules and regulations laid down for its observance, in consequence, chiefly, of its paludal complication. Therefore, in noticing the semiology of the epidemic, it is necessary to embrace the aggregate symptoms of the pathological phenomena as they actually occurred. In order to convey a definite idea of the scourge in its entirety.

Its type was decidedly asthenic and ataxic. Many apparently mild cases, with no great heat of skin or frequency of pulse, would be arrested in apparent convalescence, and continue for from twelve to fourteen days with constantly threatening congestions. Some with more violent initial symptoms, with a temperature at 103° and 104°, increasing to the second or third day; the pulse, at 120, or higher, declining from the first visit, would merge into convalescence on the fourth or fifth day. Others, with similar surroundings and management, instead of convalescing, would drag along to the eleventh or thirteenth day with a pulse varying a little above or below 88; with a normal temperature, and terminate fatally, with hæmorrhage or black vomit.

Most cases, of whatever nature, were ushered in by a chill, followed by a fever, with a pulse and temperature to which the succeeding phenomena would correspond. The attack was so violent in some cases that death occurred within thirty-six hours. Great prostration was frequent from the beginning in serious cases.

The eye did not often exhibit the bloodshot, glistening appearance and inquisitive, anxious stare; but frequently presented a mere suffusion with an expression of apathy; sometimes there was pain in the eye-balls, with intolerance of light. The face was sometimes injected, pale or waxy. The tongue was rarely furred at first; it would become red, cracked and dry in hæmorrhagic cases, and sometimes became darkly discolored, even when black vomit did not occur. Headache and rachialgia were generally constant during the first and second days; and pains in the joints common in children; and sometimes in adults they would simulate those of gout, rheumatism or dengue. The skin was most generally moist from the beginning, and became more so as the disease progressed; in some cases the perspiration was profuse and clammy, emitting a peculiar, disgusting odor; but its abundance afforded no relief to the patient—not apparently affecting the temperature. Insomnia and restlessness were constant during the febrile paroxysm. Delirium—mild or furious—was not uncommon, especially in female and nervous persons. Thirst was frequently an urgent symptom from the first. Anorexia was constantly present throughout the disease; the loathing of food was sometimes so great that liquid nourishment would induce nausea in many instances, even in those which terminated favorably. Pain and tenderness over the region of the stomach were sometimes distressing, even in favorable cases, and occasionly it would extend to the abdomen. In some cases, chiefly among adults, nausea and vomiting of bilious matter occurred in the inception of the disease, generally followed by biliary dejections, and accompanied with an icteric hue of the skin; pain in the region of the spleen usually attended these symptoms. Hæmorrhages occurred generally late in the disease, mostly passive, and from the mucous surfaces. Uterine hæmorrhage was constant in menstruating females; many miscarriages occurred; some women were delivered of still-born children at their full term.

The temperature frequently fell during convalescence much below the normal standard. The pulse, whatever may have been its force and frequency, after it had declined, generally became weak and slow, sometimes falling below 40 beats to the minute. In these cases convalescence was protracted; the appetite was perverted; and dyspeptic symptoms, with a weak heart remained for months afterwards.

Cutaneous eruptions of various kinds appeared in many cases, after the subsidence of the febrile paroxysm, and also during convalescence. In some instances the eruption was confined to particular parts of the body—generally to the thorax, back, arms and thighs; and sometimes to the brow alone. The urticarous, roseolous and eczemous were the most common. The eruptions which appeared during and after convalescence were the most annoying, continuing longer than a week, and giving rise to intolerable itching; and in some cases the desquamation of the cuticle was as great as that occurring in a pronounced case of scarlatina. During and after convalescence boils and abscesses frequently made their appearance; they were confined to no particular part, and were sometimes so numerous and gave rise to so much discomfort, as to confine the patient in-doors for several weeks.

Swellings of the salivary glands, gums and tongue were of common occurrence during the latter part of the disease. Suppuration of one of the parotid glands occurred in several cases; but in one case only, in the practice of Dr. W. J. Armstrong, did "both of the parotid glands become inflamed quickly after the attack of the fever; and rapidly went on to suppuration and total destruction of the glandular structure, with sloughing of the parenchymatous tissues, leaving a cavity behind each angle of the lower maxilla an inch deep, by three-fourths of an inch in diameter."

In some cases a typhoid condition substituted convalescence; in many, an icteric hue of the skin and eyes remained for weeks.

Bright's disease and albuminuria were among the sequelæ;

generally occurring some weeks after convalescence, and were of the most serious character.

Relapses occasionally occurred, and were almost always fatal. Death appeared to be due to feebleness of the heart.

The greatest number of fatal cases appeared to be due to the direct sedative action of the poison of the disease. Death by coma and convulsions was most common in women and children. Uræmic poisoning, with or without black vomit, was most generally the outlet of life among adults, whose stomachs and kidneys had been impaired in function or structure from habitual dietetic indiscretions, or from pernicious drugs; or from having undergone super-sudation.

Whatever views may have been entertained of the special pathology of individual cases, occurring during the epidemic, it was from the master poison that the greatest danger was to be apprehended, and to which all efforts were to be directed. Every kind and variety of diseased action would wear its livery; and it was folly to burden the mind with useless distinctions, and attempt to treat any other disease without being ever conscious that the exhibition of special means should not be those inimical to the medical constitution existing at the time.

For reasons before stated, a diversified treatment was required according to the character of the case presented; and remedies were as varied as the diverse opinions entertained of the nature of the epidemic. Mercury and quinine were relied upon chiefly by some. Dr. Mallory, in his account of the epidemic, states that he gave a cathartic dose of calomel in the commencement; and that "after purgation, the remedy was continued in small doses until ptyalism was induced." His patients "recovered without manifesting any inconvenience, in many instances, from its employment. Suppression of the urine did not appear in a single instance among the eighty-one patients on whom this treatment was employed."

One of those who used quinine in all cases, gave it in one-grain doses, in combination with the same quantity of calomel every hour, until ten doses had been taken; and then gave the quinine alone every two hours until the fourth day, when stimulants were given as required.

Dr. Luke P. Blackburn, of Louisville, who had charge of Walthall Infirmary, believing yellow fever to be similar to the exanthemata, treated it with warm drinks and foot-baths, with sufficient covering. Neither purgatives nor diuretics were given until convalescence was established; though the vinous and stronger alcoholic stimulants were freely allowed. He believed that the poison was eliminated by the skin solely; and he looked upon "the fæcal matter, coated over with bile, as being the most soothing coat which the bowels can have in the first stage of the disease." According to his judgment, quinine was fatal in yellow fever.

Some physicians employed neither mercury nor quinine, using gentle purgatives or aperients at first, and enemata when needed later in the disease. During the febrile paroxysm, warm diluents, as orange-leaf tea, etc., were generally resorted to. By some lemonade was preferred, and champagne and other wines allowed. To promote the action of the kidneys, the salts of potash or ammonia, with or without the spts. nitric ether were commonly used. The effort was made by some to abort or resolve the febrile paroxysm by means of such depressing agents as gelseminum, aconite, digitalis, or veratrum viride; and for irritable stomach, chloroform, creosote, nux vomica, and Fowler's Solution of arsenic were prescribed. The hydrate of chloral and bromide of potassium, or morphia were used to promote sleep. Carbolic acid and the sulpho-carbolate of sodium were tried when black vomit occurred. The spirits of turpentine, acetate of lead, and the preparations of iron were given for the relief of hæmorrhages. Vinous, distilled and fermented liquors were almost always used during convalescence. These are among the articles of materia medica asserted to have been prescribed. Hot mustard pediluvia were invariably used by all, and cold sponging of the upper extremities by many. Sinapisms or blisters to the epigastrium to relieve gastric distress were in general use. Dry and wet cups, blisters, and warm fomentations were applied to the region of the kidneys in cases of suppression.

My views of the pathology and treatment of yellow fever have undergone no essential change since 1854, when I denied the efficacy of Blair's formula expressed by the symbol XX by XXIV; and those of my acquaintance who attempted to carry out his precepts have been forced to abandon it. Quinine in scruple doses, in some epidemics, may do good when it is combined with calomel, but I believe that the beneficial effect is due more to the mercurial than the alkaloid. While rejecting this heroic treatment of Blair's, I also rejected the expectant as well as the sedative, which has not yet gone out of fashion with some; neither can I attach much importance to the internal administration of diuretics or diaphoretics, which have been thought eliminative, in consequence of their nauseating effects on the stomach.

If we can not remove the cause of diseased action, we should attempt to annul it or counteract its effects. The cause of yellow fever now recognized to be a peculiar zymotic poison, acting as a destructive ferment, depresses and prevents the vital and functional forces, gives rise to great excitement of the circulation and torpor of the glandular and secretory organs. The intense eremacausis of the tissues, and high combustion acting through the blood, may produce, in a short time, destructive changes in the most important organs of the body. The indications for treatment are obvious, and are to remove all offending matter from the *primæ viæ* and rouse the emunctories to action, and are best fulfilled by the administration of mercurials and salines, and promoting their action by warm diluents; at the same time that we attempt to reduce the temperature by sponging the upper extremities with ice-cold water, and assist in equalizing the circulation by revulsives to the surface of the abdomen, and hot stimulating pediluvia.

These are, I believe, the best means of disgorging the glandular apparatus and equalizing the circulation preparatory to the use of agents which tend directly to counteract the destructive fermentation which is going on in the blood. All spoliative and depressing medication should now cease, though the action of the skin and kidneys should be promoted without disturbing the stomach; for, upon the proper performance of their functions will depend the progress of the case and the impending lesion of the heart. Here judgment comes into play; and upon a recognition of the true pathological conditions of each individual case, and a knowledge of the therapeutical properties of the remedial agents adapted for its relief, will depend the result; always provided that the patient can be placed in a position suitable to his condition, and have all the agreeable surroundings which are required.

Bland and nutritious liquid food should be regularly given to sheathe the lining of the stomach and neutralize or dilute the gastric juice; but warm drinks for other purposes are to be discontinued. Crushed ice, or ice-water, may be used for their refrigerant effect only; but the urgent thirst, which necessarily ensues from the elimination of the watery elements of the blood by the induced catharsis, must be allayed by cool, pure water or refrigerant, agreeable beverages, mixed with good wine; otherwise, the inspissated blood will engorge the kidneys, and the case will be materially injured. The practitioner will always have to regard the idiosyncracy of his patient, and be governed by the peculiarities of each case.

After sufficient catharsis has been induced, wine, and even the stronger alcoholic stimulants, are more efficient than any other class of medicines. They will be found, in manageable cases of yellow fever, almost a *sine qua non*, preventing, *paribus*, the supervention of the destructive changes which might otherwise occur, thus making a simple, mild case, which, if allowed to run its course expectantly, or attempted to be jugulated heroically, would become a "full-fledged" one, either to drag its slow course along, or terminate fatally.

After congestions or other complications have occurred, it is too late to expect a specific action from the preparations of alcohol; but still, either with or without quinine and citric acid, its supporting action is required to stimulate the heart and equalize the circulation; and in malarial complications, its combination with quinine is the best for the exhibition of this salt.

For irritable stomach, when the tongue is red and dry and the thirst urgent, ice will not succeed so well as ice-cream or sherbet, or cool vinous drinks delicately prepared to suit the taste of the patient. Stimulating embrocations, sinapisms, or blisters over the epigastrium, in connection with the above treatment, have given relief to the most distressing symptoms.

The hydrate of chloral and bromide of potassium, or the salts of morphia and camphor-water, are of unquestionable utility in this disease.

If no complications arise, no drugs are to be given; the patient should be made comfortable by a proper regulation of diet and hygiene; and if there be no contra-indications, vinous, fermented, or distilled liquors in quantities and combinations to suit the condition of the patient, should be allowed.

The use of alcohol in the treatment of pyæmia, and its property of lowering the temperature in pyrexia, has, of late, attracted much attention, and the medical reader is competent to form an opinion on the subject. I will briefly sum up, from the results of my own researches and those of others, the theory of the modus operandi of this agent, and would most respectfully call the attention of the Profession to its action in yellow fever.

In a state of health, alcohol does increase the animal heat, especially when the system is depressed by cold; when there is diminished capillary circulation and reduced temperature by virtue of its combustible nature; and it resolves congestions of the lungs in incipient pneumonia by arousing the nervous forces and equalizing the circulation. In a state of fever it diminishes the temperature at the same time that it sustains the action of the heart; and this is explicable from the fact, that while rapidly oxidized itself, it prevents the oxidization of the tissues; therefore, by arresting the frightful combustion which obtains in yellow fever, it diminishes the temperature; and by arousing the latent vital energies, it equalizes the circulation and relieves engorgements or congestions. Another explanation is, that it acts within the animal economy as it does without, by preventing or arresting the putrefactive or fermentative process, each of which is attended by heat. It may yet be proved to be the best antidote to all zymotic poisons, as well as to the bites of venomous animals.

When the temperature of the blood is too much increased, as it is in yellow fever, its saccharine elements can not be converted into alcohol (as I contend does take place in a state of health); but the acetous fermentation is induced instead, similar to what always occurs when the mash—prepared for the induction of the alcoholic fermentation—is subjected to a too great degree of heat. Under the conditions present in a marked case of yellow fever, we can readily conceive how, in a short time, the whole mass of the blood may become acetified and so changed that the emunctories cease to act at all, and the functions of the economy are in abeyance, in consequence of the circulation of a fluid other than that which nature has designed for the maintenance of their action. The kidneys becoming as impermeable and useless as a foreign body, the abnormal death fluid seeks the great work-shop of the system, and oozes through its parietes, to be known to the observer as *black vomit.*

The moral treatment is by no means unimportant in yellow fever. Fear being the most potent agent for evil, the patient should not be alarmed by being made acquainted with the nature of his case; neither should those nearest him be better informed, unless absolute necessity arises. The medical attendant should never betray doubt or anxiety as to the result; a confident look, kind words, and a manifestation of a friendly interest in behalf of the patient, encouraging him to hope for a successful issue, will do more good than medication. None but congenial, cheerful, and discreet persons should be allowed access to the sick-room; the exclusion of all disagreeable or depressing influences should be enforced, and the patient should be relieved of all personal cares of whatever nature, and feel himself perfectly secure in the hands of those to whom his physician has entrusted the management of his case.

Remarks.—The community was quite unprepared to meet with firmness the advent of a so much dreaded disease as yellow fever, and were quite taken by surprise when the Board of Health announced the fact that it had actually been in progress for several weeks, and had been the cause of the frequently occurring deaths which had excited so much alarm.

A panic seized upon the people generally, and nearly all whom business or poverty did not prevent, left the city within a few days. Among those who remained, were brave spirits to whom the fear of death was unknown; and many whose sense of honor and duty nerved them to stand at their posts and act their part as their stations in life required them to do.

Fourteen physicians were stricken in the strife, seven of whom sealed their devotion with their lives. Seven priests and ministers of grace, and as many sisters of charity are numbered, with many other martyrs, with the dead.

Unfortunately, there was no medical organization in Memphis around which the citizens could rally and look up to for advisement; consequently, from sheer necessity, the leading minds among the remaining inhabitants organized themselves for action, and did the best that could be done under the circumstances.

If the city authorities had invited a meeting of the Profession, doubtless a concert of action would have been effected, which the various relief societies would have supplemented, and the epidemic could have been managed as in other cities, where its occurrence does not disarrange the current course of business.

In a mercantile community like that of Memphis, it is most natural that the almighty-dollar should have been considered omnipotent for the cure of all the "ills that flesh is heir to"; and that its procuration was the only desideratum.

The city government being without pecuniary means, appeals were made individually and collectively to the country at large, which touched effectively the benevolence of the people everywhere; and large amounts of money were received, to be spent often not in the most efficacious way for the relief of the suffering.

As is generally the case on such occasions, volunteers from abroad were soon in readiness; and they were not "without honor." Gratuitous advice, as regards the management of the disease, appeared in the columns of the newspapers, and was retailed on the streets, of so conflicting a nature, and by such a heterogeneous number of persons from all the walks of life, that it is not to be wondered at that the sage counsels of the individual members of the Profession fell upon unheeding ears.

It was lamentable that no coöperation or consultation was held with as competent a body of regularly educated physicians as any city can boast; but who, nevertheless, individually bestowed their time, means, and skilled labor for the alleviation of the suffering.

Instead of the various relief societies supplementing, they nearly altogether, in many cases, supplanted the duties of the Profession; and so embarrassed and thwarted medical efforts, that it was often impossible to treat the disease properly; or as the physician's judgment might dictate; consequently the result in the practice of many was beyond their control; and the percentage of fatal cases is not to be attributed to the management by the Profession, as much as to the unavoidably unfavorable circumstances which obtained in Memphis during the prevalence of the epidemic. There were too many doing the same work—too many casting their sympathies on the same questionable objects; instead of contributing their assistance to the personal comfort of the sick, under the directions of the medical attendant.

No organization can successfully take the place of the medical in times of pestilence; and individual interest and sympathy should be subservient to its rule; under which personal sacrifice and influence—the vital contact of mind on mind—may accomplish the needed results. But there is no influence so potent as that of the physician in whom the sufferer confides; and to be most effective, all persons and influences must be under his entire and absolute control.

As the Medical Profession of Memphis does not represent itself as a unit, or an organized body, it is of the individual physicians of whom we would speak in closing our remarks on the mournful catastrophé of 1873. Our reflections are suggested by the sad havoc among those who rushed single into the conflict to stay the ruthless hand of the fell-destroyer, and who met their doom with heroic resolution.

"A MORAL sublimity has in all ages and in all countries, marked the conduct of the physician, far transcending that which has been exhibited by the man engaged in any other occupation of life. The soldier volunteers to be of the 'forlorn hope,' and even mounts the 'imminent deadly breach.' The incentive is fame. If successful, he wears the laurel twined around his brow; he receives—incense to his heart—the gratitude and applause of his nation; his achievements are transmitted in history and in verse; a mausoleum encloses his remains; and a statue is erected to perpetuate his memory. But the physician! No niche in the Temple of Fame is appropriated for the reception of *his* bust. To him *alone* is reserved the consciousness of having performed good deeds; while the former *destroys*, the latter, an humble instrument in the hands of Providence, *saves* life. If such be the character of the ordinary career of the physician, how much more exalted is his behavior, and with what increased lustre does it shine when great occasions arise. To combat an invisible enemy; to place one's self in a situation to be stricken without being able to strike in return, evinces a degree of courage unparalleled in the annals of the world beside."*

Minor, Crone, Freeman, Williams, Hatch, Kennon, Blount.

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* This eloquent tribute is copied from Dr. Happoldt's beautiful eulogy of the physicians of Savannah, who died at their posts in the terrible yellow fever epidemic of 1854.—ED.

Noble spirits! Your deeds need not to be perpetuated by the perishable monuments of man's creation; they are recorded in Heaven.

ART. II.—SUPPOSED ACEPHALO-CYST OF SPLEEN. By J. L. DISMUKES, M. D., Mayfield, Ky. [Read before the Southwestern Kentucky Medical Association.

It fell to my lot to be called to be present at an operation, both for advice and assistance, the patient residing near Nashville, Tennessee, and being about forty years of age. My opinion had been asked and sought by letter for weeks before the day was set when I should visit, and, as it appeared almost certain was proper, assist in the contemplated operation. I arrived there, as by appointment, at the very time that cholera was at its worst in the city of Nashville, June 18th, which prevented the chosen surgeons from leaving the city so as to be present, as had been arranged two weeks before. I, however, examined the patient, and found a tumor apparently proceeding from the left hypochondrium, and then filling that whole region, displacing and tilting up the short ribs and infringing upon the stomach, perceptibly pressing it far to the right of its normal position.

Under palpation, there was evident fluctuation, showing the contents of the tumor to be fluid. I advised, as had already been agreed upon, to draw off this fluid by means of an aspirator. But as I could not possibly remain after the operation, and the surgeons desired, *just then*, could not be spared from the city on account of the cholera, it was thought best to postpone the operation till the desired after-treatment could be commanded.

This advice was acted upon and I returned home. A few weeks after that, from secondary considerations, he determined to visit Philadelphia and seek the advice of Drs. Carson, Wood, Agnew, and Gross. Intending to take a sea voyage, our patient passed through Charleston, S. C. Here he consulted Drs. Ogier and Geddings. These gentlemen drew off the fluid with the aspirator; the operation was an entire success, no unpleasant symptoms following in its train. There were five and a half quarts of sanious fluid drawn off of a serous nature.

Our patient went on to Cambridge in company with the party he left Charleston with, from which place I last heard from him, some two weeks since. He writes me that within the last few weeks the tumor has again begun fo fill, and that very rapidly—faster than he regained his strength. He writes that Dr. Geddings says that the tumor was developed from the kidney, as microscopic examination of the fluid showed kidney casts of the tubuli uriniferi; while Dr. Ogier says it was a cyst developed on the under side of his spleen. "The former opinion I am satisfied is erroneous." There was not a particle of urinary smell to the fluid, which must have been the case had the interior of the kidney been involved. Besides, his water was also put to the test, and no kidney casts discovered; but, on the contrary, perfectly healthy.

His theory, to comport with this fact, compelled the destruction entire of a great portion of the left kidney; but his symptoms have not justified such an amount of disease of so important an organ. The kidney casts, I think, were nothing more than the epithelial cells of the lining membrane of the sac, which is fibrous tissue with pavement epithelium upon the internal surface.

My own opinion is, and I introduce it here for the purpose of drawing forth the opinion of this Body, that this tumor was a cyst developed from the spleen near where it is joined to the gastro-splenic omentum, *below* which is the left kidney. At this point the yellow elastic tissue, constituting the inner covering of the organ, not only invests the spleen, but its vessels also, ramifying in every direction, forming a recticulated mesh of cells and follicles, and these, beside, communicating freely with each other, do also communicate with the splenic vein. These constitute the normal parenchyma of the tissue, and this connective tissue adheres in such a manner as to form completely closed capsules or cavities of varying shapes.

Now, the patient had been, in early life especially, and for some years back, subject to remittent fever; and, as a necessity, to periodic and prolonged congestions and hyperæmia of the spleen. The beginning of the effused liquid produced the transformation and enlargement of these capsules or cavities into true cysts.

The congestion and hyperæmia at each successive return increase the contents, and thereby develop the membranous tissue of the cysts, and greatly enlarge the capsular cavity upon the surface of the spleen, ending in a true cyst, which, under the continuation of the originating cause, eventuate into immense tumors, the size of a man's head frequently; yet, may the spleen be unaltered if the cyst is developed from a single vesicle only. Then the development of the cyst is very rapid, some of its vessels are ruptured, and thus the sanguinolent character of the contained fluid in the case under consideration. Or, like the other tissues in their normal state, this specific alterteration of tissue may be attacked with inflammation, and thus the serum be mingled with the previous contents of the cavities. Or, perhaps, this continuous periodic congestion and hyperæmia may bring about perversion of nutrition and cell-growth, and thus " some microscopic cell-germ, which forms the base of most of our tissues, takes on, in some inexplicable manner, a new mode of action," resulting in the membrane now considered; and whose inherent endogenetic life-force develops the cyst to an almost indefinite expansion, and accumulates, by secretion, a great quantity of fluid matter.

Treatment.—As the danger and inconvenience resulting from these tumors are almost entirely mechanical, and as they, " unfortunately, are without the circle of the ordinary systemic actions and susceptibilities, they are scarcely in any degree influenced by medical treatment "; therefore, the tumors, so far as they are in reach, belong to the province of the surgeon.

In this I am opposed to all temporizing. There is in this case no means of compression so as to effect a cure. To inject irritating substances into the sac of the acephalo-cyst, is to risk an inflammation ending in peritonitis and perhaps death. The complete and entire extirpation of the neoplasm, then, is the only radical cure, and the surest means of arriving at the end of the trouble.

ART. III.—EMBOLISM. By C. H. SPILMAN, M. D., Harrodsburg, Ky. [Read before the Central Kentucky Medical Association, April 15, 1874.

Mr. President and Gentlemen of the Association,—Although the subject you have selected for our present discussion has probably had an existence coëval with "man's first disobedience," it seems never to have been apprehended by the medical mind, in its pathogenetic aspect, until within the last quarter of a century; and our present literature on this subject, which may be predicated of pioneer labors on most new discoveries, requires to be very carefully sifted.

Running back through the literature of our Profession for the last two centuries, and even beyond that period, we find groups of phenomena that are distinctly pathognomonic, and point unerringly to embolic formations as their cause; and yet have been referred by those writers to other pathological conditions. Out of the multitude that might be adduced, we shall offer, for want of time, only one or two examples in confirmation of this fact; and it need be no matter of surprise if, upon a full investigation of this subject, it should turn out that there is a link beyond the pathological cause, on which the views of many distinguished pathologists, even to this day, are crude and unsatisfactory.

Early in the present century, we find a work by Prof. Chelius, of Heidelberg, in three volumes, on the principles and practice of surgery, translated, with notes and observations by Professor South, of the College of Surgeons of England, a work of great erudition; and for amplitude and classical finish, not excelled by any work in our language in that department of literature. About the same time, another work by Sir Benj. Brodie, entitled "Physiological Inquiries or Observations," which reached its third edition in less than two years. From each of these great lights I offer you one example, to indicate the limit of the knowledge then entertained on this lesion; and the descriptions are so true to nature, I must give them in their own language. In one of his notes to Chelius, South gives the following case:

"I have observed a case of dry gangrene in a man about forty years old, which extended up to the middle of the leg, where it stopped, and the part separated. There had existed for a long time undoubted symptoms of organic disease of the heart."

Brodie mentions "a case of mortification of the leg up to the middle of the thigh, which commenced with a sense of pricking numbness and weight; and on the following day the limb had mortified. No vesications formed on the foot; it was not swollen, and no part became putrid, except just a little in the thigh, where was a great mass of soft parts. The limb dried, the skin assuming a brownish color, being at the same time hard or semi-transparent, so that the white tendons could be seen shining through it. It was in fact a case of dry gangrene. The patient's powers failed, and he died at the end of six weeks. Upon examination, I found marks of inflammation everywhere around the principal artery and vein of the limb. From the bifurcation of the large trunk down to the middle of the thigh, the artery was obliterated, being completely filled with coägulated lymph, evidently effused from inflammation, closely adhering to the inner surface, but with some mixture of red coagulum. I suppose that the nature of the case is plain enough; there had been inflammation of the artery and the vein, and the obliteration of the artery was to so great an extent as to cut off the supply of blood, not only through the trunk, but through the anastomizing branches."

In these admirably delineated portraitures, we have a striking summary of those phenomena which characterize an embolism; and the incidental citation of an antecedent organic disease of the heart in one case, and the obliteration of the artery from the bifurcation of the large trunk down to the middle of the thigh in the other, from our standpoint, clearly determines the pathological cause, which, to these distinguished pathologists, was a stumbling block. One circumstance I may not omit to mention, in passing: Prof. South, in reply to some strictures of Baron Dupuytren intended to show that the closure of the vessels and resulting gangrene were generally caused by arteritis, makes this statement: that "inflammation of the arterial tunics can not be considered as the general cause; for, in most cases, there is not a single previous appearance indicating inflammation of the arteries; and their closure is caused by the mortification, and consequent to it." Thus it will be observed that while South is successful in exposing the fallacy of Dupuytren's inductions, he falls himself into error, no less palpable, in mistaking the effect for the cause, affording the clearest proof that our fathers entertained no settled, well-defined opinions relative to the pathogeny of this malady.

The blood which permeates every part of the organism, is the common vehicle of renewal and waste. Its constant supply to every part is essential to the maintainance of life. Cut off the supply, and just to the extent of this deprivation will death speedily ensue. The numberless causes, therefore, which may tend to disturb a due balance of circulation, is an inquiry of the deepest interest to the pathologist. Prominent amongst these causes—revoltingly irremediable in their very nature, and perhaps more prolific of morbid results than has ever been conjectured—are embolism and its congener thrombosis. So universally have these terms been confounded by the writers I have consulted on this subject, I have been sometimes perplexed to determine, from the books, the differential import of the two; yet, to avoid nosological confusion, so marked a distinction, as indicated by their etymology, should be well defined.

A thrombus is stationary, and is formed at the point of obstruction. It may result from calcification, atheromatous degeneration, sub-acute inflammation, or any morbid change in the organic properties of the walls of the vessel, which may give rise to effusion of lymph upon its inner surface. This plastic matter thrown out, becomes a nucleus, around which, through vital affinity, the kindred particles of the blood plasma cluster; and by a process of accretion, aggregation, and agglutination, and sometimes interstitial deposition, form a plug of sufficient magnitude to arrest the current.

An embolus is migratory. It may form under the same pathological conditions, and be identical in elementary structure with a thrombus. Indeed, perhaps, oftener than otherwise these floating bodies consist of detached bits of fibrin from disintegrated thrombi. They are supposed to consist occasionally in small particles of tissue which find their way into the circulation from suppurative ulceration upon the surface of the body, and from destructive disease of the lungs. The difference consists simply in this: thrombi are formed at the place of obstruction; emboli at a point remote from their lodgment.

In regard to the pathogeny of these lesions, if my investigations have been worth anything to me, most of the authorities I have consulted have fallen into an important error. It is alleged that in hyperinosis and leucocytosis the coägulable material of the blood, and its viscosity, are so increased as greatly to retard the circulation, and give rise to the formation of coägula in healthy vessels. This, I think, is an assumption without proof. The blood is the creature of the vessels which contain it. Healthy vessels never contain sickly blood, unless it is put there. Nor do sickly vessels contain healthy blood. When a clot forms in either cavity of the heart, or within the smaller conduits, the initiative must of necessity be taken by the tunics. To say that the blood, *per se*, ever does or can coägulate in any part of the circulating system, without antecedent disease of the vessel, at the point of coägulation, is unphilosophical—contradicted by well-known principles of physiology, and has not a solitary fact in support of it. It will be admitted, however, that a hyperinotic state of the blood, or an abnormal amount of white corpuscles bears some relation to this affection, when the vascular lesion and plastic effusion anywhere exist, affording the occasion by proving a powerful predisposing cause, and more speedy development of the clot.

That an antecedent vascular lesion bears a causative relation to heart-clot, and by implication all similar concretions, is strongly corroborated by the well-known fact, that most of these formations either accompany or follow marked symptoms of endocarditis, or some other endocardial affection. It is not necessary that the action should be violent; there may be no pain; no physical or vital sign that could lead to its detection. The slightest abnormal diversion of the organic properties may give rise to an effusion of plastic lymph sufficient to form a nucleus. The immediate effect of the obstruction, whether by a thrombus formed at the spot, or by an embolus swept down from above, is congestion in the parts surrounding the plug. The ulterior result will depend on the nature of the plug; the size and situation of the vessel occluded; the supply of anastomosing vessels; the promptness and facility with which collateral circulation becomes established, and the vital nature of the parts on which the terminal branches are distributed.

It has been supposed by some that the embolus is indigenous to the left heart; and this is doubtless the birth-place of those vegetations that are detached from its walls and swept by the current down the artery until arrested by the diminished calibre of the vessel, resulting in dry gangrene and rapid destruction of the limb. It sometimes, however, commences its career in other parts of the circulating system, not unfrequently from the disintegration of a thrombus within a vein. We have the authority of Virchow for saying, that these thrombi, even after having become organized, sometimes undergo rapid degeneration and disintegration, and their fragments carried forward by the current to the right side of the heart, whence they are propelled through the pulmonary artery, and become impacted in some of its branches. These concretions, thus formed, are denominated phleboliths, and have, by some pathologists, been supposed to be formed in the blood. They are the débris of disintegrated thrombi.

These formations, I believe, to be specific bodies; and constitutional predisposition has much to do with them. When the subject shall have become better understood than it now is in their development, growth, degeneration, and disintegration, I think they will be seen to bear a striking analogy to tubercle. While neither exhibits the exact characteristics of the products of common inflammation, each is manifestly a modified form of coägulable lymph; depending alike on specific vital states.

If pathological anatomy has ever thrown any light upon the science of medicine, it has certainly succeeded in establishing this one fact, that the same lesion of structure may be characterized by very different phenomena, according to the condition of the subject in which it occurs. Andral says: "In all the adventitious secretions, effusions, and deposits of morbid structures, exhibiting, as they do, an endless variety, we observe one constant lesion—viz., hyperæmia." That tubercle and atheroma rest on one common pathogenetic basis, there is hardly any room for doubt. The constitutional conditions, which may be either transmitted or acquired, giving rise to a development of their respective phenomena, are indistinguishable. They are, without controversy, closely related in their causes and effects, and are often seen to coëxist in the same individual. The morbid deposits of each are alike characterized by inflammatory products, which ought to settle the mooted question as to their dependence upon inflammatory action; confessedly, however, of a low grade, such as would be looked for in that retrograde metamorphosis of tissue, and deteriorated nutrient activity and vital force which characterize the tuberculo-atheromatous diathesis.*

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* I think this view will be found strikingly corroborated by Virchow's recent work on "Tumors," in which we have an interesting description of those glandular developments often witnessed in the leucocythæmic diathesis. I make special reference to his lecture under the head of "Lympho-sarcoma."

I have not time, however, to elaborate this vexed question, but will return to the more immediate consideration of vascular obstruction by the formation of concretions within the walls of the vessels.

As before intimated, emboli have no independent existence, whatever may be their peculiar texture and elementary composition; or whether originating in the cavities of the heart, or within the walls of a vessel at some remote point, an antecedent abnormal action is set up in the coats of the vessel, resulting in effusion of lymph on the inner surface, which becomes the nucleus for the formation of a plug. Atheromatous degeneration of the casts is often found to exist; and by the various processes of secretion, effusion, deposition, and aggregation, it soon attains a magnitude sufficient to fill the vessel and arrest the current. These thrombi, by and by, like tubercle, after having become organized, seem to lose their vitality; soften down, become disintegrated, and the fragments set adrift. The phenomena of embolism are now displayed. If in a vein, the vessel constantly widening, the particle afloat meets with no obstacle until it has gained the right side of the heart, whence it is propelled by the systolic force of the right ventricle through the pulmonary artery, until arrested by the diminished calibre of the vessel.

There is no more inviting or practically important aspect of this subject than that which concerns the lungs. Two sources of embolism of the lungs exist, giving rise to hæmorrhagic infarction of larger or smaller diminution: that resulting from the disintegration of thrombi within the veins, and such as proceed from disease of the right heart; the mode of origin and lesion of structure in each case being the same.

The pulmonary arteries enter the roots of the lung in company with the bronchi, following their subdivisions and ramifications until each terminal twig is distributed upon a single lobule. The dimensions of an infarction, resulting from an embolus, will correspond precisely with the capillary limits on the distal side of the plug. It may be bounded by one lobule or many, just as the occlusion may embrace within its range one terminal twig or many.

To the untiring labors and careful observations and researches of Prof. Virchow, the Profession are indebted for many facts which have thrown a flood of light on this subject, particularly as regards the source of these obstructing concretions. His philosophic mind suggested an *experimentum crucis*, which was at once simple and convincing. He introduced into the jugular veins of dogs particles of fibrin, muscle, and other foreign substances, and upon dissection, found these bodies firmly impacted in the pulmonary arteries, having given rise to hæmorrhagic infarction, lobuler pneumonia, abscess, and in some rare instances, circumscribed gangrene on the distal side of the plug. Here is demonstrative proof that the obstructing coägulum, in hæmorrhagic infarction of the lungs, may not originate in the place of its lodgment, but has been detached from a thrombus at some remote point, perhaps a peripheral vein, and swept on by the current until arrested by the narrowing vessel.

The differential import of the symptoms which characterize metastatic and cardiac infarction, respectively, is not always very clear; for while it is generally true, that emboli detached from a cardiac thrombus are larger, and consequently lodge near the roots, or in the interior of the lungs, there are occasionally very minute particles of fibrin detached, in heart disease, which, entering the circulation, are not arrested this side of a terminal twig, when the infarction is limited by a single lobule, in which event, the differential diagnosis can be determined only by the previous history of the case. Well marked symptoms of heart disease, for a period prior to the development of the pulmonary lesion, affords strong presumption of cardiac origin.

I shall have to make a very brief reference to those vascular obstructions which originate on the left side of the circulating system. Here, as on the right, these vegetations may form either in the cavity of the heart or at any point upon the walls of the smaller conduits. The former, however, is doubtless the most prolific source; particularly of those emboli which are swept down by the current, occluding the arteries, giving rise to gangrene of the extremities, and occasionally finding their way into the splenic and renal arteries. And while it is true that thrombi may, and sometimes do form in the vessels of the brain, in cardiac thrombosis, particles of fibrin are often detached and washed by the current through the carotid artery and plug up some vessel of the brain, giving rise to phenomena not easily distinguishable from cerebral hæmorrhage.

There is a noteworthy peculiarity attending these encephalic phenomena, which I may not omit to mention here. Although the pathogeny of cerebral embolism is identical with that of gangrene of the extremities from occlusion of their vessels, the resulting phenomena, in the two cases, are widely different. In both cases, the death of the parts on which the occluded vessel is distributed results from the deprivation of nutritive material. In the brain, however, the necrosed tissue does not undergo decomposition from exclusion of air by a firm cranial encasement; and unless the vitality of the part be maintained by the speedy establishment of a collateral circulation, we have softening of the brain and loss of functional power.

It is a matter of scientific interest, if not of practical importance, to be able to distinguish between partial anæmia and softening of the brain, caused by thrombosis at the spot, and embolism from some remote point; and also between embolism and ordinary cerebral hæmorrhage. The differential diagnosis may be attained with tolerable certainty in the former case, but not so easily in the latter. In their ultimate results to the parts involved in the lesion, thrombosis and embolism are the same. In their premonitory symptoms and modes of development, however, we find a tangible basis for a differential diagnosis.

When it is considered that thrombosis is usually the offspring of an atheromatous degeneration of the walls of the vessel in which it occurs; that its calibre is permanently lessened; that this is a gradually progressive morbid process; disturbing a due balance of circulation, and by collateral fluxion, overthrowing the rhythmic action of the entire encephalon, giving rise to serious brain symptoms long before the closure of the vessel; while embolism is suddenly precipitated upon a vessel previously healthy, traversing a region whose organic action, up to the moment, has been undisturbed, the diagnostic importance of an intimate knowledge of the previous history and antecedent condition of the case can scarcely be overrated.

In that sectional necrosis, softening, and loss of functional power to which cerebral embolism gives rise, there are, it is true, premonitory symptoms; but they are not brain symptoms, as they are found to be in cerebral thrombosis; but they are emanations from endocarditis or valvular disease, from which fibrinous coägula are detached and swept by the current along the course of a cerebral artery, until arrested by the diminished calibre. These consecutive phenomena not only attach additional weight to our diagnostic inductions relative to thrombosis, but afford the only sound basis for discrimination between embolism and cerebral hæmorrhage whose phenomena are often indistinguishable, except as revealed by autopsy.

Doubtless the philosophy of softening of the brain, which has of late attracted much attention, and is confessedly a fruitful cause of mortality, particularly in advanced life, lies in the pathology of these two lesions; and although the result may be, and sometimes is brought about by other causes, these are unquestionably the most prolific sources. But, it will be observed, it is not every case, either of thrombosis or embolism that proceeds to a fatal termination. Even after the symptoms unmistakably announce their existence, and anæmia and deterioration of functional power have supervened, if the obstructed vessel be small—commanding but a limited capillary range, and collateral circulation early established, the nutritive activity of the anæmic portion is restored, and the brain symptoms all disappear. Whether, however, we possess any means, either prophylactic or therapeutic, by which the mortality from this source may be lessened, is the great problem which most concerns us, as a Profession.

I wish it was in my power to add something, in conclusion, which might be practically useful, relative to the therapeutics of these lesions. I fear, however, that our science is barren of any facts which will relieve the Profession of the humiliating concession that they stand, and are likely to remain, the *approbria medicorum*. Were there any vital or physical signs by which they could be diagnosed, in their forming stage, it would greatly enlarge our therapeutic resources. But I know of none. Art knows no means by which the plug, once formed, can be removed; nor is it any more capable of facilitating the establishment of a collateral circulation.

Prof. Austin Flint, after having very truly stated that an abnormal excess of fibrin in the blood is a characteristic of inflammation, makes this very remarkable declaration: "It is difficult to decide, upon rational grounds, how far this element of inflammation is a source of therapeutical indications. Blood-letting is found to increase the fibrin of the blood, and hence is not an appropriate remedy so far as this element is concerned." Now, to say that this quotation contains a sophism, is simply to utter a truth which no man is more capable of seeing than Dr. Flint, if he will give the subject sufficient thought. Men of great breadth of intellect sometimes, merely from inattention, fall into grievous errors; and this dilemma only demonstrates that great men have their weak points, and that it is not always safe to take their opinions on faith. I have subjected the matter to an infallible test, perhaps one hundred times, and affirm, without the fear of successful contradiction, that in an appropriate case, to the requisite extent, blood-letting invariably lessens the percentum of fibrin. It is only when you misapply the remedy—exceed or fall short of the requisite amount, that you have "irritation and excessive reäction" from the loss, and consecutive retrograde metamorphosis of the tissues, which, I grant, will exalt the proportion of fibrin. Thus, it is papable, the induction of the distinguished professor is predicated of a misapplication, not the judicious employment of the remedy. In the same connection, and of similar import, we have another deduction of the distinguished author no less sophistical. Having ascertained what may be inferred from analogy, that starvation increased the fibrin of the blood by a destructive disintegration of tissue, *ergo*, he concludes that a marked reduction of food is unsuited to the treatment of inflammatory diseases. Now, the same philosophy is involved in both these cases. Restriction in diet and vascular depletion, as a rule, are alike demanded in inflammation. The measure of their therapeutic value however, can be determined only by an intelligent estimate of the philosophy of their operation on organic life. The unsoundness of these deductions, therefore, consists in mistaking a contingent for a general result—the exception for the rule. Such careless therapeutical precepts, founded on a spurious philosophy, coming from a distinguished source, are calculated to do much mischief, and I have a melancholy recollection of disasters, in my own practice, the fruits of my unquestioning faith in his soundness as a pathologist.*

As it is an admitted fact, that all those who have subjected these formations to an analytical scrutiny concur in the opinion that they are the products of inflammation, there has manifestly been a period in their history which called for an antiphlogistic treatment; and although this period has usually passed before the attention of the physician is called to the case, were there any signs by which it could be detected in its incipiency, I should not hesitate, as in the inflammatory stage of tubercle, to use the lancet as the most efficient means of arresting its progress.

Dr. Rush, by his remarkable penetration and sharp insight into the very buddings of disease, cured consumption in its forming stage by a master stroke of the lancet, and his failures could be found only where the period of hope had been frittered away by a neglect of antiphlogistic means, or the catastrophe precipitated by the incendiary treatment.

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* I regret the necessity which has provoked this issue; and am not unaware of the hazard I incur. Nor would I be true to my convictions of duty, or the cause of humanity, of which I am an humble defender, if I did not speak with honesty and frankness. If wrong, a refutation will be gladly accepted.

The forming stage of thrombosis is even more obscure and difficult to diagnose than that of tuberculosis; and in this consists our impotency, until, confronted by phenomena in which all efficient means are unavailing.

Erichsen gives it as his opinion, that in exceptional cases the coägula are removed by absorption and the calibre of the vessel restored. Such spontaneous recoveries, other than that through anastomosing vessels, I apprehend, are very rare; and when they occur, it is in virtue of the great law of recuperation, to the integrity and full development of which all remedial agencies have reference. Assuming this to be the occasional result of the unaided medical power of Nature, it is a question of some interest whether the result might not be promoted by the free employment of sorbefacient remedies.

ECLECTIC DEPARTMENT.

"Carpere et colligere."

IDENTIFICATION OF THE BODY OF LIVINGSTONE.

The following account by Sir William Fergusson of his examination of the body of Livingstone will be read with much interest:

"It has fallen to my lot to have the honor of being selected to make the crucial examination to this end, and I have accordingly performed that duty. From what I have seen, I am much impressed with the ingenious manner in which those who have contrived to secure that the body should be carried through the long distance from where Livingstone died until it could reach a place where transit was comparatively easy, accomplished their task. The lower limbs were so severed from the trunk that the length of the bulk of package was reduced to a little over four feet. The soft tissues seem to have been removed to a great extent from the bones, and these latter were so disposed that by doubling and otherwise, the shortening was accomplished. The abdominal viscera were absent, and so were those of the chest, including, of course, the heart and lungs. There had been made a large opening in front of the abdomen, and through that the native operators had ingeniously contrived to remove the contents of the chest as well as of the abdomen. The skin over the chest, sternum, and ribs had been untouched.

"Before these points were clearly ascertained, some coarse tapes had to be loosened, which set free some rough linen material—a striped-colored bit of cotton cloth, such as might have been an attractive material for the natives among whom Livingstone traveled—a coarse cotton shirt, which doubtless belonged to the traveler's scanty wardrobe, and in particular a large portion of the bark of a tree, which had formed the principal part of the package—the case, thereof, no doubt. The skin of the trunk, from the pelvis to the crown of the head, had been untouched. Everywhere was that shriveling which might have been expected after salting, baking in the sun, and eleven months of time. The features of the face could not be recognized. The hair on the scalp was plentiful, and much longer than he wore it when last in England. A moustache could not be distinguished, but whiskers were in abundance. The forehead was in shape such as we are familiar with from memory, and from the pictures and busts now extant. The circumference of the cranium, from the occiput to the brow, was 23⅞ inches, which was recognized by some present to be in accordance with such measurements when alive.

"In particular, the arms attracted attention. They lay as if placed in ordinary fashion, each down by the side. The skin and tissues under were on each side shrunken almost to skeleton bulk, and at a glance to practiced eyes—there were five, I may say six, professional men present—the state of the left arm was such as to convince every one present who had examined it during life, that the limb was Livingstone's. Exactly in the region of the attachment of the deltoid to the humerus, there were the indications of an oblique fracture. On moving the arm, there were the indications of the ununited fracture. A closer investigation and dissection displayed the false joint which had long ago been well recognized by those who had examined the arm in former days. The Rev. Dr. Moffat, and in particular Dr. Kirk, late of Zanzibar, and Dr. Loudon, of Hamilton, in Scotland, at once recognized the condition. Having myself been consulted regarding the state of the limb when Livingstone was last in London, I was convinced that the remains of the great traveler lay before us. Thousands of heads, with a like large circumference, might have been under similar scrutiny; the skeletons of hundreds of thousands might have been so; the humerus in each might have been perfect; if one or both had been broken during life, it would have united again in such a manner that a tyro could easily have detected the peculiarity. The condition of ununited fracture in this locality is exceedingly rare. I say this from my personal professional experience; and that such a specimen should have turned up in London from the centre of Africa, excepting in the body of Dr. Livingstone, where it was known by competent authorities to have existed, is beyond human credibility. It must not be supposed by those who are not professionally acquainted with this kind of lesion—which often causes so much interest to the practical surgeon—that a fracture and new joint of the kind now referred to, could have been of recent date or made for a purpose. There were in reality all the indications which the experienced pathologist recognizes as infallible, such as the attenuated condition of the two great fragments (common under such circumstances), and the semblance of a new joint, but actually there was a small fragment detached from the others which bore out Livingstone's own view, that the bones had been "crushed into splinters." Having had ample opportunity of examining the arm during life, and conversing with Livingstone on the subject, and being one of those who entertained hopes that the last reports of Livingstone's death might, like others, prove false, I approached the examination with an anxious feeling regarding this great and most peculiar crucial test. The first glance at the left arm set my mind at rest, and that, with the further examination, made me as positive as to the identity of these remains as that there has been among us in modern times one of the greatest men of the human race—David Livingstone."—*Brit. Med. Journ.*

CASE OF EXTIRPATION OF THE KIDNEY.

Dr. Brandt, Professor of Surgery at Klausenburg, relates in the "Wiener Med. Woch." for 29th November and 6th December an interesting case of the successful extirpation of a kidney after an accidental injury.

S. P., a healthy peasant, aged 25, was, on 3d June, 1872, stabbed by a drunken man in the left hypochondrium by means of a pointed table-knife. Three or four ounces of blood were lost; and after awhile attacks of cough came on, which were attended by a protrusion of a fleshy swelling through the narrow orifice of the wound. Twenty-four hours afterwards he was brought to the hospital, when scarcely any signs of anæmia were observable. Exactly opposite the lower edge of the last false rib there was found a flattish fleshy tumor, of a reddish color, measuring nine centimetres in length and six in breadth, and from which constantly trickled a transparent, straw-colored fluid. The edges of the tumor were irregular, as if gnawed, and its under surface was covered by a smooth membrane, in part of a dark-red and in part of a whitish color. From the middle of this lower surface, a pedicle, six centimetres in circumference, extended into the wound of the abdomen, giving the tumor the appearance of a mushroom. This pedicle was surrounded also by a smooth membrane, which was torn in several places, whence escaped some of the above-mentioned fluid. It was firm to the touch, evidently containing vessels, which, however, conveyed no pulsation. The oblique wound in the hypochondrium through which the pedicle passed was about three centimetres in length and one and a half in breadth, having sharp edges, with which it embraced the pedicle. To the touch, the tumor was moderately firm and painless (pain only being produced by traction on the pedicle), and the temperature at the surface was lower than that of the rest of the body. The tumor upon the whole much resembled the section made on examining a kidney, and under the microscope the shades of color characterizing the cortical and pyramidal substances were made out. The abdomen in the vicinity of the wound was quite normal in appearance, but in the left lumbar region there was a remarkable oval-shaped sinking in. The tumor was very movable on its pedicle when rotated, and this last admitted of some elongation, which, however, produced great pain in the pedicle and the abdomen, but not in the tumor itself. The general condition of the patient was unexpectedly good, the pulse being, twenty-four hours after the accident, about 80, and the temperature 37·8° C.

The appearance of the tumor and the analysis of the urine which trickled away (which is given in some detail) showed plainly that it was the kidney that had suffered an injury. The organ had evidently been cloven to within its calyces; but what amount of injury the ureter and the vessels had undergone could not be ascertained. It could hardly have been supposed that a knife could have been driven through the abdomen right into the kidney without injury being done to the peritoneum; but the absence of all symptoms proved that such had been the case. After considering at some length the various probabilities of the course the case would take if the kidney were allowed to remain where it was, and of the effects which its removal might exercise on the economy, Professor Brandt proceeded to its extirpation four days after the injury. The patient, indeed, continued in a very favorable state for the operation, having the day before its performance walked some distance in order to be photographed, occupying two hours in assuming the necessary position. For the three days prior, he had passed little urine, and this contained albumen, derived at all events in part from the injured kidney, which at its injured surface furnished it abundantly. On the day of the operation the pulse was 70, and the temperature 37·6°. The purulent secretion from the injured kidney had considerably increased. A double silken ligature was passed by means of a straight needle through the middle of the pedicle, which was tied in two portions, the kidney itself being separated by means of the knife. No hæmorrhage followed. A daily report of the condition of the patient and the quantity of urine secreted is given from the 7th to 22d June. From this it results that considerably more than half of the urine usually secreted by the two kidneys was furnished at all times by the single one, and on some occasions this amounted to the entire normal quantity. In the whole course of the case no symptoms of a uræmic or peritonitic character occurred. The patient has been frequently seen since his discharge, and continues well.—*Edinburgh Med. Journ.*

TYPHOID FEVER—ITS NATURE, MODE OF SPREADING, AND PREVENTION. By WILLIAM BUDD, M. D., F. R. S. (A Review).

This work is welcome as the result of the mature thought and large experience of one who may be considered as a pioneer in the study and prevention of enteric fever. The author informs us that the substance of the work before us is to be found in the various papers upon typhoid fever, which he published, from his first, in the "Lancet" in 1857, down to those in the "British Journal" of 1860. His first chapter is written under the following heading from Bishop Wilkins: "Time wears off the fictions of opinion, and doth, by degrees, discover and unmask the fallacy of ungrounded persuasions." We wish this quotation were applicable only to the study of enteric fever, instead of, as it is, to nearly all the studies in medicine.

Dr. Budd estimates that an average of 15,000 persons die, and 140,000 persons are attacked, annually in England by enteric fever, and gives a graphic description of the horrors of epidemic diseases—a description too easily guessed at by many of our readers, and more thoroughly realized by those who remember 1846 and '47 in Ireland, than even Dr. Budd himself can conceive. The relation between disease and pauperism is so well known in Ireland, that a proof of it from an English source is a twice-told tale.

Dr. Budd tells us that from returns made in 1838 by the medical officers of twenty unions and parishes in the metropolis, 13,972 cases of claims to relief, on the grounds of destitution, were created during that year by attacks of fever alone, and that in 1,281 cases the attacks proved fatal.

Dr. Budd contends strongly for the belief in the contagious nature of enteric fever, and "that this conclusion should be persisted in is, I repeat, perplexing." We quite agree with Dr. Budd, and believe that there can be no doubt whatever of the contagious nature of enteric fever, and unfortunately we have met with instances where there was but little question as to its arising from this source. The number of facts in favor of contagion are so numerous that we scarcely can see how any one can doubt the evidence. Dr. Budd quotes an epidemic of fever in the village of North Tawton, in Devonshire, as a proof of the spread of typhoid contagion. Dr. Budd writes of the bad sanitary condition of North Tawton "as powerless to *generate* fever" without a more specific element—contagion. This is followed by other illustrations to the same effect.

The author considers "that all the emanations from the sick are, in a certain degree, infectious." But "that which is cast off from the intestines is incomparably more virulent than any" he seems to imply further on by the statement—"they (contagious effects) never occur except where no sufficient provisions have been made for preventing the discharge from the human intestines from contaminating the soil and air of the inhabited area"; that it is *only* by means of the intestinal secretions that the disease can be carried.

"Like malignant cholera, dysentery, yellow fever, and others that might be named, this is one of the great group of diseases *which infect the ground.* Hence the quasi-miasmatic character attaching to them all, which has misled so many observers as to their true mode of spreading."

We think Dr. Budd really wastes much time and space trying to prove that enteric fever *is* contagious, as most experienced observers admit it to be so.

Dr. Budd corroborates the views held by Murchison, Pettenkofer, and others, that the contagious principle of the enteric fever discharges is developed by changes which set in after those discharges have been exposed to external influences.—*Dublin Medical Journal.*

ANALYTICAL DEPARTMENT.

"Qui e nuce nucleum esse vult, frangit nucem."—PLAUTUS.

THE MICROSCOPIC STRUCTURE AND MODE OF FORMATION OF URINARY CALCULI. By H. VANDYKE CARTER, M. D., London. (Review.)

This is a very interesting and, as we think, successful attempt to fill up a blank in medical literature. The author has had opportunity, leisure, and scientific zeal, and the product has been some very excellent work on a difficult and little-studied subject. The observations have been made on sixty-nine cases, all from Deccan, Sinde, or Bhooj; and from these a most careful table is constructed, showing the relative frequency and proportions of the various ingredients. Oxalate of lime is very frequent, being found as a constituent in about seventy per cent., and a nucleus in more than thirty-five per cent.

The book itself is so precise and concentrated, that it is not easy to condense it farther. From a summary we extract the following conclusions:

1. That urinary calculi are not mere precipitates or aggrega-

tions of ordinary crystalline and amorphous deposits, held together by mucus.

2. An animal basis is an essential component of urinary calculi. This is probably not always the same, and its only approach to organization is a finely granular, striated or fibrillated appearance.

3. Peculiar and characteristic ingredients, which are immediately of physical origin, but hold a position intermediate between pure mineral and organic. To these the name *submorphous* is given by the author.

4. Frequently the stone seems to commence by an accumulation of globular urates. The idea that stone is the result of accident is not sustained by these researches.

The mode of formation of calculi is discussed, and the method, termed by Mr. Rainey "molecular coälescence," is fully entered into.

These inquiries render the utility of any attempt to disperse calculi very improbable. The free use of pure drinking-water seems to afford hopes of *prevention* of calculus.—*Edin. Med. Journ.*

CONTRA-INDICATIONS OF OPERATIVE INTERFERENCE IN CASES OF MELANOTIC TUMOR DERIVED FROM A MICROSCOPIC EXAMINATION OF THE BLOOD AND OF THE URINE.

The state of the viscera is of the utmost importance to a surgeon proposing to operate in a case of melanotic tumor. Is it possible to learn anything of this before operating? In patients suffering from visceral melanotic disease, the blood and the urine have the following characters: The white corpuscles of the blood are increased in numbers, and the serum contains numerous brownish-red granules and flexible granular tubes, which appear to be moulds of capillaries; and the red globules, in mass, present a more or less color of sepia. The urine is dark in color, and, on the addition of nitric acid and bichromate of potash, becomes blackish; and contains cylindrical masses, and collections of brown granules. This melanuria does not necessarily indicate metastatic nodules in the kidney, but implies an excess of pigment in the blood; and, as a consequence, the spread of disease in the viscera. (The above generalizations, so far confirmed by cases, are quoted in a brief abstract from an interesting note communicated by M. Nepven to the Society of Biologie, on 17th January, 1874.—*Gazette Medicale de Paris.*

SUDDEN DEATH FROM EMBOLISM OF THE PULMONARY ARTERY, AFTER INFLAMMATION OF VARICOSE VEINS.

M. Chabanat in an inaugural thesis gives the following conclusions on this important subject: 1. Inflammation of varicose veins of the adhesive type predisposes to embolism of the pulmonary artery, and, as a consequence, to sudden death. 2. The clot breaks up and is carried on by the current of blood when the patient is in process of cure, and generally as the result of an effort. 3. Death is due in general to the size of the clot, which completely blocks up the pulmonary artery or one of its large branches. 4. The patients die almost always without asphyxia, rarely by fainting; sometimes asphyxia is preceded by a faint. 5. As yet we have no means by which to prevent the migration of the clots; it is necessary then, as far as possible, to prevent them from breaking up.—*Gazette Medicale de Paris.*

CLINICAL RECORDS.

"Ex principiis, nascitur probabilitas: ex factis, vero veritas."

ART. I.—COMPOUND COMMINUTED FRACTURE OF THE LEG TREATED BY THE IMMOVABLE APPARATUS—RECOVERY. By A. ANSELL, M. D., San Antonio, Texas.

As this seems to be the age of conservative surgery, I offer to the Profession a unique case of compound comminuted fracture treated conservatively, candidly confessing, however, that while carrying out the treatment I doubted very much the utility of my efforts, and it is due to my friend and fellow-practitioner, Dr. George Cupples, to say, that but for his good advice and long-time experience, I might have subjected the limb to amputation. The case is as follows:

John Varga (a Hungarian), aged 39, of fair stature, robust, and of previous good health, sustained a compound comminuted fracture of both bones of the right leg, on the night of the 16th of December, 1873. The accident was thus occasioned: The unfortunate man was conveying a load of wood to town by means of an ox-team (four yoke), he seated on the tongue of the wagon. While crossing a ravine, his leg came in contact with a stump of a tree which was in the road, and forced the leg back against the tongue, while the oxen continued their onward pace, literally "smashing the leg to pieces." The man fainted and fell from his position on the tongue to the ground, into which a piece of the bone was driven for about an inch. In this impaled condition he was discovered an hour after the accident occurred, deluged in blood, and somewhat insensible. He was conveyed to a house near by, and at 12 o'clock, midnight, I was sent for. On arriving, I found the patient sitting up holding his knee, the leg hanging close against the thigh. There was still considerable arterial hæmorrhage, the pulse small and weak. I caused the patient to be placed in a recumbent position, made pressure over the wound, and sent for assistance. Dr. Cupples arrived at 2 A. M. On removing the pressure the hæmorrhage was found to have ceased, and its place taken by some slight venous oozing.

Having chloroform at hand, the patient was at once anæsthetized, and we proceeded to examine the extent of the injury. We found extensive comminution of both bones for about four inches of their continuity; we found an extensive disorganization of the soft parts, besides a deep sulcus in which the breadth of two fingers could lie with ease. The interior of the wound was not interfered with, there being no desire to give rise to recurrent hæmorrhage. The examination satisfied us that the case was one of extreme doubt, whether, under the most favorable circumstances, it could be saved and rendered serviceable; but we determined to leave it until daylight for further examination. In the meanwhile cold-water dressings were applied, and a person placed to watch till morning.

On the following day the man was removed on a stretcher to a better location, and there we reëxamined it, and learned the man's previous history, and determined to give the case a conservative trial. Three things determined us in our course: 1st. Patient's previous history being unblemished; 2d. No recurrence of hæmorrhage or complaint of pain; 3d. An unexceptionable climate.

Ordered the limb to be kept constantly treated with cold-water dressings.

December 19.—Progressing well; no constitutional disturbance; determined to treat the case as a simple fracture. We hermetically sealed the wound with styptic colloid and lint, then enveloped the limb in a flannel bandage from the toes to the knee; over this we carefully adjusted some pieces of binder's board, and kept them in position by a dextrin bandage, and then firmly buckled the limb to a double inclined plain, in which position it was kept until—

January 5.—Up to this time there had been no unfavorable symptom or a necessity to prescribe a dose of medicine. On this day (twenty-first since the fracture took place) the apparatus was removed and revealed NO UNION. We still determined to carry out our *first intention*—saving the limb.

On the following day we again placed the limb in the apparatus (immovable) much modified from the former. The wound (now nearly healed) was again covered, as before, the flannel bandage and binder's boards reäpplied, over this a starch bandage with plaster of Paris. This was permitted to dry and become firm. Then, to protect this from injury, a stout sole-leather case was adjusted and strapped over it firmly. This case extended from the ankle to the knee-joint; a sling-shoe of the same material was made and hung suspended from a strap around the waist, as well as a strap of webbing over the shoulders. With this apparatus, the patient was enabled to rise from his bed, and, with the aid of crutches, move about. He was sent to his home (ten miles off) with instructions to return in fifteen or twenty days.

January 30.—Patient returned to-day. The apparatus was removed and a perfect cure revealed. Firm union had taken place; no excess of callus; not the least deformity; no difference in length of limbs.

February 26.—Patient following his plow as usual.

ORIGINAL CORRESPONDENCE.

"Sit mihi Fas scribere audita."

DANVILLE, MONTGOMERY, MO., 1874.

Dr. E. S. Gaillard:

My Dear Doctor,—Having been very much interested in the following case, I beg leave to report it for your Journal:

Was called at 7 o'clock, A. M., November 10th, to see Mrs. C., aged thirty-eight; married; the mother of eleven children; rather stout; leuco-phlegmatic, and found her in the following condition: Violent convulsions, mouth and chin drawn to the *right* side, pupil of the right eye widely dilated, of the left, contracted; skin dark and muddy; lips purple, whole surface cold, and pulse scarcely perceptible. Learned the following history from her husband: For two days previous had been complaining of violent pain in the breast, referred to the whole head, and at times of the back; on assuming the erect position, would complain of nausea, and endeavor to vomit. Had been subject to risings in the head or ear, at which times she would have violent headache, till relieved by abscess bursting and discharging from ear. Had been much fatigued and wearied by nursing and sitting up with her sick child for several nights previous.

As she complained of sick headache, the Doctor, without any particular examination, prescribed bromide of potassium in 10-grain doses every four hours. He remarked to me afterwards, that he noticed she had a stupid, dull expression, which he attributed to the effects of the loss of rest and the headache. Her husband said he thought she had taken cold. Her bowels had been slightly moved the night before. Was two months advanced in pregnancy. The night of her seizure she had been very restless, frequently exclaiming that her head would kill her, when about 3 o'clock, suddenly throwing up her hands, she fell back in convulsions. As soon as I arrived, I gave her, per orem, half a drachm of chloroform, which seemed for a short time to check the force of the convulsion. In half hour gave one drachm of chloroform. No violent spasm for one hour, but still there was no complete relaxation of the muscles; the muscles of the face continually twitching; the thumbs drawn to the palms of the hands; breathing stertorous, and insensibility profound; large involuntary discharge from bowels. At 9 o'clock she had another violent spasm; head drawn back and to left side; mouth and chin to *left.* Injected into deltoid one-fourth grain of sulphate of morphia, and applied blister 4 × 6 between shoulders; cold applications to head.

At 9 o'clock, another convulsion same as last; at this time her left eye seemed to be much swollen, and the ball was covered with a thick jelly-like exudation. I now gave thirty grains chloral hydrate, of which she got, may be, twenty grains. After this there was no more violent spasm; the surface became warm, the pulse rose almost to a natural condition, and after a little while she was bathed in a profuse perspiration. The muscles of the arms and hands though did not relax; her breathing was stertorous, and insensibility profound.

At 10 o'clock there was suddenly discharged from the nostrils a peculiar whitish discharge, about like rich new milk, which discharge continued in considerable quantity to flow till death. I at this time requested that Dr. Adams be sent for. On consultation, the Doctor stated that she had told him at his former visit that she had been chilly at 3 o'clock the night before, and that probably this was another chill. At his suggestion we prescribed—Cal., grs. v.; Opii., gr. $\frac{1}{4}$; Camph. gr. i., every two hours, to be followed, if she could take it, by the free exhibition of quinine. Gave her the first powder at 12 o'clock, which was with difficulty swallowed. Saw the patient at 6 P. M.; no better; powder given at 2 o'clock; none at 4. Breathing more laborious; coma profound; dying. Died at 12 M.

Very respectfully your friend,

THOMAS HILL, M. D.

GRANDE RONDE, INDIAN RESERVATION,
OREGON, 1874.

Prof. E. S. Gaillard, M. D.:

Dear Sir,—I have under my professional care a case of singular interest (to me at least). Singular to me because I have not seen a case like it before. I have a very good library of the most approved works, and I fail to find on record any more than a mere statement, without any particular light as to either diagnosis or treatment. I will give you the previous history of the case as I learned it from the patient, and its present condition and appearances.

The case seems to be elephantiasis, or excessive hypertrophy and induration of the cellular tissue of the left leg. The patient is a native Umpqua Indian, male, fifty or fifty-five years of age, of good moral character, and otherwise healthy.

Without further explanation, I will present the case in the best manner I can.

Previous History.—When the patient was a lad (how many years since he does not know), he was bitten on the left leg, in several places, by a very large rattle-snake. He received no treatment, apart from that rendered by the "Siwash Medicine Man." He recovered from the immediate effects of the snake-bite, and had no trouble from it until about 1855, when the Government of the United States organized this Reservation, and removed this man, together with his tribe, on to it. About that time his leg commenced noticeably to grow larger, harder, and heavier (this is his idea). The enlargement has been gradually going on till the present.

Present Condition and Appearance—Superficial Appearance.—When looked at and manipulated, the skin is thin and produces a sensation to the fingers very much like leather, and is covered (sparsely) with small, circular, elevated eschars near the size of a large buck-shot cut in two, and seem, to appearance, to have been small blisters, which, when filled with serum and well elevated, instead of discharging their contents, they seemed also to become indurated. The foot and ankle have not participated in the enlargement or induration. The ankle presents a constricted appearance, and the enlarged integument and cellular tissue form a dependent roll, completely concealing the ankle-joint from view.

The enlargement is far above what a surgeon would suppose to be possible without bursting the skin. In point of size it will compare very favorably with a nail-keg. The enlargement is only from knee to ankle.

The induration and weight are excessive. At the present, and from the first I ever saw of it, a man has not the power in his fingers to indent the limb. It is so heavy that the man complains of great pain in the region of the hip-joint and inguinal region. He is in very much the same condition as convicts who are doomed to wear a heavy shackle for any length of time. This is all the pain of which he complains. He has been under the medical treatment of every physician who has had the Medical Department of this Reservation under his care.

It is my opinion that amputation is the only remedy that is likely to prove permanently beneficial. I now (few days past) have him under the following treatment: Small and numerous punctures, then apply a bandage tightly from foot upward; giving him tonics and alteratives in full doses, and design continuing them steadily for a sufficient length of time to determine whether there is any virtue in that course of treatment.

If you have the time and feel that this case is worthy of it, please give me your opinion either through the Journal or privately. What is the true name and pathology of the disease, and the best course of treatment?

Respectfully, John Field, M. D.

Note.—This, from the description given, seems to be a case of Elephantiasis Arabum. See No. 4 Medical Weekly.—Ed.

Bonham, Texas, 1874.

Prof. E. S. Gaillard:

Dear Doctor,—I was called in great haste to see Mr. ——, banker of this city. On my arrival at his hotel, I found him in a state of semi-consciousness, with a tight, quick, corded pulse, pupils largely dilated, tongue as "dry as a chip," voice husky, great difficulty in deglutition. He had lucid intervals of three, four, and five minutes' duration, when he would relapse into a state of unconsciousness. Upon inquiry, I found he had taken "two swallows of D. B. Richard's 'Golden Remedies.'" Suspecting poison, I proceeded to empty the stomach, in which I found great difficulty, succeeding only when I had exhausted nearly the whole list of active emetics. After vomiting freely, his mind became clear. Complaining of great prostration, I gave him one ounce of brandy, which brought the pulse up to its normal condition. His nervous system suffering a great deal, I gave Potass. Bromid, grs. xx.; Aquæ Puræ, ℥iij. M. S. ft. Haust, which quieted him, and at 11 o'clock P. M. he was resting quietly.

I called at his place of business this morning and found him at his desk, complaining of great prostration and some dizziness of vision.

Can you inform me what D. B. Richard's Golden Remedies are composed of? Please let me hear from you on the subject.

Faithfully, etc.,

J. L. Dorset, M. D.

(Do not know.—Ed.)

BROWNSVILLE, Mo., May 17, 1874.

Dr. E. S. Gaillard:

Dear Sir,—I report the following case of exophthalmic goitre, because of the fact that the disease is a rare one, and statistics are wanting in order to arrive at more definite conclusions respecting it:

Mrs. J., a widow, aged sixty-two, tolerably healthy-looking and active for one of her age, states, that about twenty years ago she was attacked with goitre, which, under the iodine treatment, gradually disappeared; that two years subsequently the goitre reäppeared, but not so large as before, and has remained the same up to this date; that about six years ago she began to be troubled with "fluttering" and violent action of the heart, which has been slowly increasing, so that it is a source of great anxiety, often requiring the patient to sit up till 12 o'clock at night before she can sleep. She also states that about four years ago she accidentally noticed that it was with difficulty she could close her eyes, which she says have "popped out." A few days ago, I examined the patient thoroughly, and found the eyeballs abnormally prominent, causing a very peculiar expression. Both lobes of the thyroid gland are enlarged to a moderate extent.

The action of the heart is inordinate, amounting to a constant palpitation—beats 100 to the minute constantly during rest—much more in exercise. On auscultating the heart I found aortic obstruction. There is also hypertrophy of the organ. The liver is enlarged. All the other organs are healthy.

Respectfully,

W. B. PARSONS, M. D.

PALESTINE, TEXAS, July 20, 1874.

Dr. E. S. Gaillard:

Dear Sir,—On Sunday, July 12, 1874, at 9 o'clock A. M., I was called to see Jim D., negro, aged 23, occupation, farmer. Found him propped up in bed; his breathing considerably embarrassed, and interrupted by frequent and deep sighing. He complained of no pain in any portion of the body; pulse 52, good volume; pupils normal. The right side of the head and body and right arm cold and clammy. No pain was evinced by the patient, even when pricked with a pin over these parts of the body; there was a complete numbness or anæsthesia of the skin, while below a certain point, say about the eleventh or twelfth rib, on the right side, and the entire left half of the body were normally sensitive. His mind was clear and undisturbed; and in reply to inquiries, remarked that he had felt very strange the evening before, and was greatly annoyed by a tingling sensation in the right hand and extending to the shoulder. Considerable thirst was present, and many efforts were made to drink water, with unsatisfactory results, save in one or two instances, when only a small quantity was swallowed. The patient was despondent and very apprehensive of his death.

Ordered a brandy toddy for him, which he refused, saying he could not swallow it. After much persuasion, he made several attempts to drink, and finally succeeded, but not without exciting a severe nervous paroxysm, which seemed almost to suffocate him. Waited a few moments until tranquility had been fully obtained, and again offered him drink, with similar results, save that the paroxysm was more severe. In these nervous spasms the muscles of the neck were observed to contract violently, whenever an attempt to drink was made.

Could not satisfactorily diagnose the case. Ordered placebo, and resumed my rounds, intending to return in a few hours. At 11 A. M. was summoned to visit the patient in haste, that he was rapidly growing worse.

My friend Dr. H. J. Hunter, at my request, accompanied me. We found three or four of his friends holding patient in bed. The paroxysms of choking or strangling were more frequent, and were induced by the mere mention of liquids; in fact, would recur at irregular intervals without apparent cause. The patient would moan, cry, and scream, and when asked why he did so, would reply, " I don't know." In the short interval between paroxysms his mind was clear. There was now present a very marked symptom, a copious secretion of saliva, thick and viscid, which was spit out in a sort of nervous haste. Grating of the teeth always followed these ejections of the saliva.

In a severe paroxysm, about 2 o'clock P. M., there was copious vomiting of a yellowish, tenacious liquid, and profound unconsciousness and rapid yielding of the powers of life. The nature of the above symptoms, notwithstanding there was no evidence of infection furnished before death, strongly aroused our suspicions that we were *watching* a veritable case of hydrophobia. At 4 o'clock P. M. the sufferer ceased to exist; seven hours after I first saw him.

After death it was ascertained that the deceased had been bitten through the right hand by a dog, supposed to be rabid, on the 12th day of January, 1873, eighteen months from the inception of the poison to its development. This link in the history of the case removed all doubt, and confirmed our suspicions.

Respectfully,

THOMAS M. COLLEY, M. D.

STEPHENPORT, KY., June 23, 1874.

Dr. E. S. Gaillard:

On the 5th instant I was called, in consultation with Dr. Cox, to see Mrs. G., who had received a lacerated wound of the right side of the abdomen, caused by the horn of a cow entering about one-half inch above the symphysis pubis, and making its exit about one and a half inches below the crest of the ilium, larcerating the peritoneum, without any injury to the intestines. After thoroughly cleansing the parts, replacing the intestines and peritoneum, I made five interrupted sutures; after which the treatment consisted in local applications to the wound of cold water and disinfectants, and opium to the extent of ease.

I made daily visits, and Mrs. G. improved from the first. On the ninth day I removed the sutures, and on the eleventh I dismissed the case. Suffice it to say, that Mrs. G. was three and a half months pregnant, and didn't, during the whole time of her illness, have any symptoms of abortion.

I am, dear teacher, yours, etc.,

C. V. Wedding, M. D.

PROCEEDINGS OF SOCIETIES.

"Etsi non prosunt singula, juncta juvant."

Southwestern Kentucky Medical Association.

This Association convened in regular semi-annual session at the city of Paducah on Tuesday, May 27, 1874—twenty-eight members present.

The Association was called to order by the President, Dr. J. L. Dismukes, of Graves county; minutes of last meeting read and adopted.

After the appointment of the appropriate committees, the Society proceeded to the election of new members. Dr. T. H. Hood, of Paducah, and Dr. Leo. Lindsay, of Cadiz, were unanimously elected to membership in the Society; both of whom complied with the requirements of the constitution.

Adjourned until 2 P. M.

AFTERNOON SESSION.

The Association met at the appointed hour, when the Committee on Nominations made the following report: "For President, Dr. O. B. Withers, of Lyon county; for Vice-President, Dr. L. M. Lovelace, of Ballard; second Vice-President, Dr. J. J. McGee, of Graves; Recording Secretary, Dr. J. W. Singleton, of McCracken; Corresponding Secretary, Dr. John Anderson, of Hickman; Treasurer, Dr. T. H. Hood, of Paducah." The report of the Committee was unanimously adopted.

Regular reports being in order, Dr. O. B. Withers read an interesting paper on Puerperal Eclampsia. Referred to the Committee on Publication.

Dr. Futrel contributed a paper on Puerperal Fever, which was referred.

Dr. J. J. McGee followed, with a lengthy and very able report on a case of Extra-uterine Pregnancy that recently occurred in his practice. The case was one of the most remarkable in the annals of obstetric experience. Referred to the Committee on Publication. (The report has been furnished the "Richmond and Louisville Medical Journal." We commend it to the attentive perusal of the Medical Profession generally.)—REC. SEC'RY.

Dr. W. W. Gilbert, of Calvert county, was elected a member of the Association; after which the Society adjourned, to meet again at 8 P. M.

NIGHT SESSION.

The members assembled at the time appointed, when Dr. John L. Dismukes arose and delivered his address as retiring President. The effort of Dr. Dismukes is worthy of the man who made it, and met a most cordial and appreciative reception from his medical brethren. The Association voted for its publication in some local journal, instructing the Secretary to secure 200 extra copies for the use of the members.

After Dr. Dismukes had concluded his address, Dr. J. W. Thompson, of Paducah, presented the following as a tribute of respect to the memory of the late Dr. T. L. McNary, of Princeton.

Resolved, That we have heard with profound regret of the death of our venerable brother, Dr. T. L. McNary, of Princeton, Ky. After a long life of honor and usefulness, he has been forced to lay aside those offices of mercy to which he has devoted himself for over a half century, and has gone to his reward, in, we trust, another and a better land.

Resolved, That we deeply lament the departure from our midst of this devoted servant of humanity; and we tender to his family, his friends and the community in which he lately lived and acted "well his part," the kindliest sympathies that his brethren of the Profession can feel, and the most sincere respect for his honorable memory in the bright example he has left us all to follow.

Dr. Maxwell offered the following, which was also adopted by a unanimous vote:

Resolved, That in the death of Dr. R. R. Bush, late a member of this Association, we have lost a useful and venerable member, and the public a good and worthy citizen.

Resolved, That we tender our sympathies to his afflicted family and friends.

After the appointment of the chairmen of the committees on various medical and surgical subjects for the ensuing year, the Association resolved itself into a committee of the whole, for the discussion of practical questions, and added much to the pleasing interest and instruction of the meeting.

At 11:30 P. M., adjourned to meet at Fulton Station, Hickman county, on the second Wednesday in October, 1874.

O. B. WITHERS, President.

J. W. SINGLETON, Rec. Sec'ry.

MASON COUNTY (KY.) MEDICAL SOCIETY.

The Mason County Medical Society met pursuant to adjournment at 11 o'clock, June 8, 1874. In the absence of the chairman, Dr. B. C. Duke, and of the Secretary, Dr. A. G. Browning, Dr. M. F. Adamson was elected temporary chairman, and J. P. Phister Secretary. Minutes of the last meeting were read and adopted without amendment.

The constitution and by-laws, adopted at the previous meeting, having been submitted for signature, the members present were duly enrolled, and the following officers elected for the ensuing year: President, Dr. M. F. Adamson; Vice-Presidents, Drs. John Shackleford and R. L. Cooper; Recording Secretary, Dr. John P. Phister; Corresponding Secretary, Dr. Thomas E. Pickett; Treasurer, Dr. A. G. Browning. Standing Committee, Drs. John A. Read, S. M. Cartwell, W. H. Lawwill, James Taylor, and Basil C. Duke.

On motion of Dr. Pickett, Committees of Inquiry were constituted corresponding with the Sections of the American Medical Association.

A resolution was offered by Dr. Phister that members be requested to furnish brief reports of cases, with special reference to practical points in medicine, surgery, and obstetrics.

On motion of Dr. Pickett, a committee was constituted for the preparation of memoirs of deceased physicians of Mason county.

On motion, a Committee on Publication was appointed by the Chair, composed of Drs. Hunter, Nelson, and Pickett.

On motion, Dr. Wm .T. Hord (Medical Inspector U. S. Navy), who is now on a visit to his native county, was elected an honorary member of the Society.

On motion, adjourned to meet on the second Monday in July.

JULY MEETING.

The Mason County Medical Society met in the Council Chamber, in the city of Maysville, at 11 o'clock A. M. Minutes of the last meeting were read and adopted.

Dr. James Shackleford was nominated for membership and unanimously elected.

On motion of Dr. Basil C. Duke, the privilege of membership was extended to physicians of the adjoining counties.

The Recording Secretary read a letter from Dr. Wm. T. Hord (U. S. N.) accepting the honorary membership tendered at the previous meeting, and expressing his intention to communicate to the Society any matter of professional interest that may come under his observation.

On motion of Dr. Pickett, honorary membership was conferred upon Dr. John T. Kerr, formerly a student of medicine in this county, and now a distinguished surgeon of Canton, China. Dr. Kerr was requested to favor the Society with copies of his hospital reports.

The Committee on Publication reported that fifty copies of the code of ethics were ordered by the Society, and one hundred copies of the constitution and by-laws.

On motion of the Corresponding Secretary, delegates were appointed to attend the meeting to be held at Flemingsburg on the 20th of July, for the purpose of organizing a District Medical Association. The Chair appointed Drs. Duke, Browning, Cooper, Nelson, and Pickett.

Some "Notes on Hospital Practice," furnished by a medical gentleman at Bellevue, were read by the Corresponding Secretary. A case of Prof. Loomis is briefly reported in these notes, to show that the "rusty sputum" is not pathognomonic of pneumonitis. *Autopsy*—right pleural cavity filled with fluid; no signs whatever of pneumonic inflammation. A case of Prof. Janeway, illustrating the powerful effects of nitrite of amyl as a cardiac stimulant; administered to a patient in moribund condition, producing immediate restoration to consciousness and speech; effect transient; speedy relapse and death. Recommendation by Prof. Sayre for correction of deformity in facial paralysis; the application of a rubber loop with silver hook attached, to the affected side; the hook being placed in the angle of the mouth and the loop over the ear. Reports also case of progressive muscular atrophy; pleurisy; pneumo thorax treated by pneumatic aspiration and pressure with adhesive strips; erysipelas, etc., etc.

Adjourned to meet second Monday in August.

FLEMING COUNTY MEDICAL SOCIETY.

The Fleming County Medical Society met at Dr McDowell's office, in Flemingsburg, Ky., June 22d, 1874, Dr. McDowell, President, in the chair.

Members present: Drs. Allen, J. N. Proctor, C. E. Proctor, R. H. Yantis, and H. Plummer. Minutes of last meeting read and approved. After disposing of the business in regular form, the Society proceeded to the election of officers for the ensuing six months, which resulted as follows: Dr. H. G. Allan, President; Dr. C. E. Proctor, Vice-President; Dr. E. McDowell, Recording Secretary; Dr. Plummer, Corresponding Secretary, Dr. R. H. Yantis, Treasurer.

The members of the Fleming County Medical Society have made a call upon the members of the Mason County Medical Society and the regular physicians of the counties of Bath and

Nicholas, to assist in forming a District Medical Society, the meeting to be at Flemingsburg, Fleming county, July 20, 1874.

I am glad to report our county Society in most excellent order, and doing a wonderful amount of good.

H. S. Plummer, Rec. Sec.

McLean County Medical Society.

In response to a call a large majority of the physicians of McLean county, Ky., met in Calhoun on the 18th of May last and proceeded to reörganize the McLean County Medical Society, by the election of Dr. William B. Miller as President, and Drs. M. O. Powns and D. D. Robertson as first and second Vice-Presidents. After the adoption of the constitution and bylaws of the American Medical Society, and the appointment of the usual committees, the Society adjourned, to meet the 4th of August next.

Members present: Drs. W. B. Rose, A. F. Watkins, D. D. Robertson, M. O. Powns, A. H. Bryan, William B. Miller, W. P. Miller, J. L. McKey, M. Keplinger, L. G. Alexander, F. H. Allison.

A. P. Watkins, Secretary.

CHEMICAL AND PHARMACEUTICAL.

"Diruit, ædificat, mutat."---Hor.

Explosive Medicines.—Young medical men are warned ("Revue de Therapie) against combining in their prescriptions certain agents, which, in case of the development of any acid, or even if exposed to a moderately high temperature, are liable to *go off.* Among these dangerous formulæ may be cited a prescription for pills not unfrequently employed in England, composed of nitrate of silver, extract of nux vomica, muriate of morphia, conserve of roses and extract of gentian, which, when affected by the development of heat, will speedily explode. In like manner, pills made of nitrate of silver and creosote, or carbolic acid, will very soon generate heat sufficient to induce spontaneous combustion. Still more surprising to the occupants of the sick-chamber is the energetic explosion (suggestive of nitro-glycerin) arising from the pills or mixtures of which oxymuriate of potash forms an ingredient.

Soluble Prussian Blue for Microscopic Injections.—When we precipitate the solution of a *persalt* of iron by an excess of ferricyanide of potassium, we obtain a blue precipitate, which is slowly deposited.

If we separate by filtration the floating greenish-blue liquid, and wash the precipitate in distilled water, the result is a complete solution of the precipitate, when the excess of ferricyanide of potassium has disappeared. The solution is a magnificent blue, and afterwards leaves no deposit.

In an investigation which occupied a very long time, M. Sergent has made a most important advance in giving a formula which enables us to obtain rapidly the soluble Prussian blue.

Red prussiate of iron, 10.50 grs.; sulphate of protoxide of iron, 9.00 grs.; distilled water, 1000.00 grs.

We dissolve separately the two salts in the water indicated, and we add, whilst agitating, the solution of sulphate of iron to the red prussiate.

The soluble Prussian blue is available for histologic injections; it is used for this purpose in the Laboratoire de Chimique de la Charité.—*New Remedies.*

Pulvis Glycyrrhizæ Co.—The formula for this excellent laxative is given by the new Prussian Pharmacopœa, as follows: Senna, licorice, of each, 2 parts; fennel seed, washed sulphur, of each, 1 part; white sugar, 6 parts. All in fine powder. To be well mixed. The dose is a teaspoonful.—*Ibid.*

For Freckles.—Sulpho-carbolate of lime, ʒij.; glycerin, ℥xxv.; rosewater, ℥xxv.; alcohol, ʒv. Mix. Annoint the skin twice daily, letting it remain damp with the lotion for half an hour.—*Ex.*

Tasteless Tincture of the Chloride of Iron.—We are indebted to Dr. Vincent Davis, pharmacist, of this city, for the following formula for the preparation of the tinct. ferri chlorid. (new): ℞—Citric acid, ℥j.; carbonate potassium, q. s.; distilled water, ℥j.: sol. chlorid of iron, (offi.), ℥j.; dilute alcohol, q. s.; white sugar, ℥ss.

Dissolve the citric acid in the water, apply heat sufficient to bring to the boiling point; then remove from fire and add carbonate potassium until it ceases to effervesce. You have now a beautiful green solution, to which add dilute alcohol sufficient to make four fluid ounces; in this dissolve the sugar, and filter. —*Amer. Prac.*

Ferrated Cod-liver Oil.—A handsome ferrated oil is obtained by triturating one part of benzoate of iron with light cod-liver oil until one hundred parts of the latter have been added, agitating the mixture occasionally during several days, and filtering. The clear filtrate is of a yellowish-brown color, and contains nearly one per cent. of ferric benzoate. This salt must be prepared for the above purpose from benzoate.—*Ex.*

A Test Paper for Urea.—A writer in the "Gazette Heb. de Chimie" describes a test-paper of this character. He allows urine to stand until it has entered upon the change known as alkaline fermentation. It is then filtered, and the filter paper is washed. By this means the globules of ferment are caught on the paper, and if this paper is immersed in a solution containing urea, it quickly induces the alkaline fermentation. By staining the paper with yellow turmeric, the known color which the paper assumes after ten or fifteen minutes' immersion in a fluid suspected to contain urea may be regarded as proof of the presence of that body.—*Ex.*

Unguentum Glycerini.—By W. Steffen.—Starch, finely pulverized, mixed cold with glycerin, and then heated until it becomes clear, is recommended as a good salve.—*Ex.*

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

"Judex damnatur cum nocens absolvitur."

A CLINICAL HISTORY OF THE MEDICAL AND SURGICAL DISEASES OF WOMEN. By ROBERT BARNES, M. D., London; with over One Hundred and Sixty-nine Illustrations. Philadelphia: Henry C. Lea. 1874.

The alleged object of the author is to give such descriptions of the medical and surgical diseases of women, as to make his treatise a true reflex of the most modern physiological and pathological views entertained by the best gynæcologists of the present day. That Dr. Barnes has given chiefly the result of his own studies, and not those of others, is manifested by the illustrations so abundantly given throughout the work. As a rule these illustrations are given for the first time in medical literature, and are agreeable and welcome substitutes for those familiar diagrams so well known by even the most superficial student of this department of medicine. One great point of excellence then in this work, is its originality of illustration and consequent originality of description. The active physician always in search of the whole truth may be sure that in purchasing this work of Barnes he is not simply obtaining the same old facts in different language, and the same old diagrams simply transferred to other pages. He will be purchasing descriptions and illustrations that he can not obtain elsewhere. Most of the diagrams are made from original specimens in the London College of Physicians, and in the museums of the London Hospitals; a valuable fact. The illustrations of fibroid tumors; faults in uterine nutrition; prolapsus and inversion of the uterus; physiological and pathological representations of the uterus, ovaries, fallopian tubes, extra-uterine gestation are especially deserving of mention. In connection with morbid developments of the uterus and its appendages, he devotes a chapter to a description of the various obstacles to a normal sexual congress. All of these are classified together under the head of dyspareunia; difficult or painful performance of sexual union.

With all of the anatomy, physiology, and pathology of gynæcology, Dr. Barnes evinces extreme familiarity. There is one fact especially worthy of attention throughout the volume, the thorough information possessed by the author in regard to the best gynæcologists of America, and the rare disposition manifested to do them the fullest justice. This necessary information on the part of a foreign author is confessedly rare, and when it is manifested, and manifested with so much justice and generosity, the fact is especially deserving of notice and commendation. He, in common with most men of learning and good sense, would heartily unite with Americans in laughing over that celebrated saying of Dean Swift, "Who reads an American book?" In conclusion, it may be properly said that this work is fully equal to that of Thomas, Hewitt, West, or Hodge, while it contains very much in illustration and descriptive that can not be found in those volumes. Mr. Lea has published and embellished the work exceedingly well.

THE THEORY OF NERVOUS ETHER. By DR. RICHARDSON, London England.

Dr. Richardson has just published an interesting paper upon the subject of "The Theory of a Nervous Ether." In using the word *ether*, he does not wish to convey the idea of a body belonging to the chemical family or group called ethers, or the ethyl series. He says: "I use the word ether in its general sense, as meaning a very light, vaporous or gaseous matter; I use it as the astronomer uses it, when he speaks of the ether space, by which he means, a suitable but material medium, the chemical composition of which he has not yet observed." Dr. Richardson further defines the nervous ether as a part of the atmosphere of the blood, a direct product from the blood. He believes that this ether passes into all parts of the human structure which have the capacity for movement and sensibility, Without this ether, he thinks there can be no life; by and through it, one organ of the body is held in communion with the other parts, and by and through it also, the outer world communicates with the outer man."

The olden theory of a nervous fluid has never been successfully assailed nor injured, but it was superseded by the electrical theory of Galvani, now in its turn almost "extinct." But it seems that the old theory must have much truth in it, for there is all-convincing evidence of the existence of an elastic medium pervading the nervous matter, and capable of being influenced by simple pressure. When a nerve is firmly pressed, there is as distinct a result as when the pressure is exercised upon a vein. When a nerve is frozen, its action ceases altogether. When a nerve is divided, who can even render the connection perfect again? Such considerations have proved to Dr. Richardson that there is certainly an agent existing in the nerves which is actual, material and mobile; a something more than the eye can see or the finger touch, and he suggests a modification of the old theory. "I think," says he, that there must be another form of matter present during life; a matter which exists in the condition of vapor or gas which pervades the whole nervous organism, surrounds, as an enveloping atmosphere, each molecule of nervous structure, and is the medium of all motion communicated to or from the nervous centres.

The source of this refined matter within the body is, I think, the blood. I look upon it as a vapor distilled from the blood, as being persistently formed as long as the blood circulates at the natural temperature and is being diffused into the nervous matter, to which it gives quality for every function performed by the nervous organization. In the closed cavities containing nervous structures, the cavities of the skull and spinal column, this gaseous matter, or ether, as I have called it, sustains a given requisite tension; in all parts of the nervous structure it surrounds the molecules of nervous matter, separates them from each other, and is yet between them a bond and medium of communication." Further on, Dr. Richardson says: "This nervous ether is an animal product; in different classes of animals it may differ in physical quality, so as to be adapted to the spinal wants of the animal, but essentially it plays one part in all animals, and is produced in all in the same way." He draws the further conclusion, that it holds the nervous system throughout in perfect tension during perfect states of life. By exercise it is disposed of; during sleep it is renewed; its deficiency is indicated by collapse or exhaustion; it holds the molecules and cells of nervous matter in a state of mobility; and it is influenced by simple external conditions, such as heat, cold, atmospheric pressure, etc.

All of these views, coming from a man of Dr. Richardson's standing, deserve the most respectful attention. He does not claim that he has settled the important point under consideration. He advances a carefully studied theory, invites its trial by experiment, and believes that his views will thus be proved to have a useful and practical result.

Published by Estes & Lauriat, 143 Washington Street, Boston, Mass.

ARCHIVES OF ELECTROLOGY AND NEUROLOGY. By GEORGE M. BEARD, A. M., M. D., New York.

The first number of this Journal has been received. It is a semi-annual of 140 pages, and is published at $2.50 a year. The whole is well arranged, well prepared, and well issued. The editor does himself and his profession great injustice, when he says in his editorial "the abler and the more scholarly it is, the greater its peril, for its supporters will be all the fewer, and the class whom it might reach will be so far below it, that it can not reach them." This is all wrong; there are thousands of physicians of erudition in this country fully able not only to easily analyze the most scholarly productions, but to indicate their errors, whether of science or diction. The editor, in his intercourse with the Profession, will surely learn this truth. His Journal, it is hoped, will meet with encouragement; it deserves this. The work is published by F. L. Christern, 107 East Twenty-eighth Street, New York.

ADDRESS DELIVERED BEFORE THE PATRONS, TEACHERS, ETC., OF YAZOO CITY (MISS.) HIGH SCHOOL. By B. F. KITTRELL, M. D.

This address has been read with much pleasure. Although the subject is old, it is of ever fresh interest, and touches mankind on points of the greatest importance. Dr. Kittrell's address is earnest and elevated, and calculated to do much good.

MISCELLANEOUS.

"Non omnes eadem mirantur ament que."

IN MEMORIAM — AN APPEAL TO THE MEDICAL PROFESSION THROUGHOUT THE WORLD.*

It is contemplated to erect a memorial statue in honor of Ephraim McDowell, M. D., of Kentucky, the *founder of ovariotomy.* The idea having originated in Danville, where the first operation was performed, was adopted by the Boyle County Medical Society, approved by the Kentucky State Medical Society, and earnestly endorsed by the American Medical Association at its last meeting in Detroit.

Ovariotomy has outlived all opposition, and through the record of its success has, by common consent, attained a position in legitimate surgery. Nations formerly arrayed against it are now claiming for themselves the honor of priority. This honor belongs to America.

In the origination and development of new ideas, the pioneer has often to suffer odium and abuse, and rarely lives to enjoy the fruition of a great discovery. This was peculiarly the case with McDowell. A modest, unassuming man of large intellect, rare judgment, strong convictions of duty, and possessing a proper ambition to advance the science of his profession and meet the claims of humanity, he accomplished an act in 1809, in the western wilds of Kentucky, which was not only discredited, but denounced by the whole medical world! With a consciousness of right, unsupported and alone, and in defiance of professional obloquy, he performed operation after operation with astonishing success, and snatched from the grave the victims of a disease until then acknowledged to be incurable! Standing firm, encouraged by results, this undaunted surgeon never faltered, although he had not as yet the prestige of a reputation nor the approving counsel of a single noted surgeon. All honor, then, to Dr. Ephraim McDowell, of Kentucky!

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* The Committee respectfully request the American and European Medical Press to copy this circular address.—ED.

Now that ovariotomy has been justly established throughout the world as one of the greatest triumphs in surgery, it is eminently proper to inaugurate a suitable memorial expression of the high appreciation of his character, of the world-wide benefits of his discovery, and of a due acknowledgment of the gratitude of every nation.

America should not stand alone in this work of love and duty; every country on the face of the earth is equally the recipient of the blessings of this discovery, and is under a moral obligation to send offerings to McDowell's shrine; and woman, who is literally saved by ovariotomy from endless suffering and impending death, should herself hasten to aid in erecting and embellishing the memorial statue, by her own delicate and grateful hands. May it be even so. How beautiful and expressive would be such an act! The offerings of her new existence laid upon the tomb of her benefactor!

This appeal, therefore, for aid is first made to the women of the world who have been rescued by ovariotomy; next to the members of the Medical Profession whose resources have been so greatly increased; lastly, to all who appreciate this advance in surgery, and regard Ephraim McDowell—the Father of Ovariotomy—as worthy of the gratitude of the human race.

All contributions to the Memorial Fund should be sent by money-order or registered letter, addressed to Dr. James M. Keller, No. 58 Green Street, Louisville, Ky., who has been appointed Secretary and Treasurer by the Committee, and who will promptly send postal-card receipts for all moneys received, and make through leading medical journals regularly published lists of the names of contributors.

Dr. John D. Jackson, Kentucky, chairman of Committee; Dr. J. M. Meyer, Kentucky; Dr. Eli McClellan, U. S. Army; Dr. Washington L. Atlee, Philadelphia; Drs. J. Marion Sims, E. R. Peaslee, T. Gaillard Thomas, T. Addis Emmett, New York; Dr. W. H. Byford, Illinois; Dr. A. Dunlap, Ohio; Dr. S. D. Gross, Pennsylvania; Dr. Theophilus Parvin, Indiana; Dr. W. S. Brodie, Michigan; Dr. S. M. Bemiss, Louisiana; Dr. R. F. Michel, Alabama; Dr. Thomas M. Logan, California; D. Sam'l Lilly, New Jersey; Dr. A. L. Breysacher, Arkansas; Dr. W. Y. Gadberry, Mississippi; Dr. Sampson Eagon, Texas; Dr. R. R. Porter, Delaware; Dr. E. L. Howard, Maryland; Dr. J. L. Cabell, Virginia; Dr. W. J. Bates, W. Virginia, Dr. E. Geddings, S. C.; Dr. E. Burke Haywood, North Carolina; Dr. Paul F. Eve, Tennessee; Dr. Henry Campbell, Georgia; Dr. R. D. Murray, Florida; Dr. D. W. Hand, Minnesota; Dr. D. W. Stormont, Kansas; Dr. W. H. Newman, Colorado; Dr. E. M. Snow, Rhode Island; Dr. E. S. Peck, Vermont; Dr. J. H. Wheeler, New Hampshire; Dr. Charles O. Hunt, Maine; Dr. Benj. Silliman, Jr., Connecticut; Dr. J. K. Bartlett, Wisconsin; Dr. W. H. McPheeters, Missouri; Dr. —— Hughs, Iowa; Dr. J. M. Toner, District Columbia; Dr. B. E. Cotting, Massachusetts; Dr. J. M. Keller, No. 58 Green Street, Louisville, Ky., Secretary and Treasurer.

Athetosis.—In a short paper on this subject, read before the Medical Library and Journal Society of New York, Dr. Wm. A. Hammond remarked, as follows:

There are several diseases, one of the chief manifestations of which is involuntary movement—the consciousness of the patient remaining intact. But that which I am about to bring to the notice of the Association had certainly never been recognized or discriminated from others somewhat similar till the publication of my "Treatise on Diseases of the Nervous System," in which work I described it under the name of athetosis, and gave the details of two cases, one of which had come under my personal observation. Since then other cases have been noticed both in this country and in Europe, and the affection has been generally regarded as being entitled to a separate place and as being distinct from any hitherto known to exist as a pathological entity.

The name athetosis is derived from the Greek Αθετος (without fixed position), and is specially applied to designate the chief phenomenon of the disease, which consists in an inability to keep the fingers and toes from continued motion. The movements are not disorderly, like those of hysteria and chorea, nor so tremulous as those of paralysis agitans, and the various forms of sclerosis hitherto described. They are regular, and are to some extent under the control of the will—that is, by a strong effort of volition the patient can for a short time prevent them, but they soon reässert themselves, notwithstanding his most strenuous endeavors to keep the muscles quiet. Even during sleep the movements continue.

In two of the cases which have come under my notice, and of which I have complete histories, there were in the first instance paroxysms of epileptiform character. In a case which I exhibited to the class of the Bellevue Hospital College last winter there had been no such attacks. They were not observed in Dr. Allbutt's case, nor in two which are now under my care.

The involuntary movements which occur in the fingers and toes are not simple oscillations, such as are present in paralysis agitans and sclerosis of the brain and spinal cord, but are slow, and are apparently performed with deliberation. The thumb and little finger are more affected than the other fingers. Owing to constant exercise, the muscles of the forearm become greatly enlarged and hard, like those of an athlete.

Pain is very generally complained of in the contracting muscles, and in one case caused very great distress.

The sensibility of the skin over the affected parts is lessened, and a feeling of numbness prevails more or less extensively over the side of the body corresponding to the disordered motility. In all other parts it is normal.

The causes of the disease have not been clearly made out as yet. In two of my cases the patients were intemperate, as was Dr. Hubbard's case, but Dr. Allbutt speaks of his patient as a "temperate woman." Thus far, of the six cases known to me, two have been women.

Relative to the prognosis, no case that has come to my knowledge has been materially benefited by treatment, but death has not ensued in any instance. I am disposed to regard the disease as being slow in its progress, but as not being amenable to the action of remedial measures. In each of my own cases there has been a steady advance in the severity of the peculiar symptoms, but the general strength of the patient has not been materially impaired.

If attention be paid to the situation in which the disease is manifested and to the character of the movements, no difficulty will ordinarily be experienced in arriving at a correct diagnosis.—*Med. Record.*

Local Treatment of Venereal Ulcers by means of Iodoform.—Dr. G. O. Morrison-Fiset, House Surgeon to the Charity Hospital, New York, reports that the great efficacy of this drug, as shown by the results obtained in the Charity and other hospitals, will make it almost indispensable as a therapeutic agent in this class of cases. For many other forms of ulceration but the venereal, iodoform has been found to act well; and in chancroids or syphilitic ulcerations it is one of the best agents to use. In the Charity Hospital the chancroid, when first seen, is usually cauterized with nitric acid, if it be simple and of medium size, covered with a tenacious and abundant yellowish secretion; if, on the contrary, it be small and its secretion slight, no cautery is applied. For phagedenic cases the actual cautery is generally employed. One application of the potential cautery is usually sufficient to destroy the virus. As soon as the slough caused by the cauterizing agent has separated, the application of the iodoform (either once a day, every other day, or twice a week, as the case may be) to the surface of the sore is commenced.

Iodoform may either be applied in form of powder, or suspended in glycerin, as in the following formula: ℞.—Pulv. iodoformis, grs. xiv.; glycerin, ℥iij.; alcohol, ℥j. M.

The powder, when used, is simply dusted upon the ulcer with a camel's-hair brush, after carefully removing all secretion present. If situated on the glans penis or prepuce, a piece of lint is placed over it to separate the diseased from the healthy parts. If the iodoform be used suspended in some menstruüm, a dossil of lint is dipped into the mixture and applied to the ulcer. The former method is preferable, the powder adhering to the surface to which it is applied; but if used in the other way, it is apt to slip from the surface of the ulcer, especially in cases of chancroids of the vulva. The sores are also directed to be washed with a solution of carbolic acid (℥j to Oj) before the application of the iodoform is made.—*Med. Record.*

NOTE.—Before using the nitric apply carbolic acid. This produces local anæsthesia, and the application of the nitric acid subsequently is scarcely appreciated.—E. S. G.

Croton-Chloral Hydrat in Neuralgia.—Mr. Benson Baker extols ("British Medical Journal") the efficiency of this drug, and in evidence relates the following cases:

A suffered from facial neuralgia of a most severe character; it affected her hearing and eyesight. She could not rest or take food. She took one grain of croton-chloral hydrat every hour. In three hours she was considerably better. After taking three more doses she was entirely free from pain.

B suffered much from facial neuralgia dependent on decayed teeth, and had not been able to take food or sleep for three days. She was ordered croton-chloral hydrat in grain doses every hour, and obtained great relief after two doses. Six doses removed the pain completely. She slept that night.

C. This patient suffered from concussion of the spine caused by a railway accident some years ago. She had every variety of treatment for the pain she suffers in the spine and the nerves proceeding therefrom. She took potassium bromide, grs. 20, and croton-chloral hydrat, gr. 1, three times a day, with marked relief and no bad symptoms.

E. This is a young dyspeptic and neuralgic patient, and suffers greatly from dysmenorrhœa. She took two-grain doses when the paroxysm of pain came on, with marked relief.

F has been under treatment for various neuralgias for some years. She has had, at one time or other, almost every external and internal therapeutic agent in the Pharmacopœia—strychnia, iron, quinia, ammonium chloride, aconite, belladonna, iodine, bromine, blisters, hypodermic injections, galvanism, together with baths and other hygienic appliances, including change of air. In this case two-grain doses of croton-chloral hydrat every hour afforded more speedy relief from pain than any of the above remedies. After taking eight grains she was almost free from pain.

In thirteen patients who have taken croton-chloral hydrat, not a single bad symptom has been observed. In grain doses it relieves pain quickly, causes natural sleep, no subsequent headache or furred tongue. In several cases it acted as a gentle laxative.

Treatment of Salivation by Atropia.—Dr. W. Ebstein relates, in the "Berliner Klinische Wochenschrift" for June 23, the case of a man, aged 68, who had an apoplectiform attack, followed by paralysis of the left half of the body and of the muscles of mastication and deglutition. He had also a constant discharge of saliva, amounting to a pint or more in twenty-four hours. Applying the fact ascertained by Heidenhain, that atropia neutralizes the influence of the chordæ tympani on the salivary secretion, Dr. Ebstein gave it in doses of 0.0015 gramme (about the forty-third of a grain). The result was, that the quantity of saliva discharged was reduced to about one-sixth of the amount above mentioned. After the subcutaneous injection of about one-forty-fourth of a grain of atropia over the submaxillary gland on the paralyzed side, the salivation ceased in seven minutes, and did not return for fourteen hours. The same result was produced, but after a longer interval, by injecting a solution of atropia into other parts of the body or dropping it in the eye.—*Brit. Med. Jour.*

A Parody.—To those who have entirely "abandoned the use of the lancet in the treatment of disease," these lines are most respectfully and most affectionately dedicated by their friend,

R. L. Payne, M. D.

Tell me not, in mournful numbers,
Men who bleed are in a dream;
He who never bleeds now slumbers,
For things are not what they seem.

Life is real; life is earnest,
And if some sick be not bled,
Dust thou art, to dust returneth,
Will be written o'er the dead!

Not enjoyment and not sorrow
Is the Doctor's lot and way;
He must bleed, lest the morrow
Find his patients only clay.

Art is long, and time is fleeting;
If you would be wise and brave,
Give some patient one good bleeding,
And thus snatch him from the grave!

For in our own field of battle;
In our bivouac of life,
We'd be like dumb, driven cattle,
If we never used the knife!

Then, though bleeding be unpleasant,
Still, a Doctor with a head,
Must bleed in the living present,
Or the sick will soon be dead!

Lives of great men all remind us,
We can make our lives sublime,
In curing our friends around us,
By bleeding each just in time!

Great fact! that perhaps another
  Passing o'er life's solemn main,
May see you bleed and save a brother,
  And seeing, take heart again.

Let us, then, be up and doing;
  Let us bleed e'er 'tis too late;
Still achieving, still pursuing,
  Learn to venæsect and wait.

LEXINGTON, N. C., July 24, 1874.

On the Local Treatment of Pulmonary Cavities. By Dr. Mosler, of Griefswald.—Penetrate directly through the exterior of the thoracic parietes to the cavity of a pulmonary abscess or a bronchial dilatation, and treat the lesion the same as an ordinary abscess, is what the author proposes, and claims that he has treated in this manner a certain number of cases with succcess. The method consists in making with a trocar and canula of proper size, one or more punctures, reaching the cavity, and injecting through the canula a solution of the permanganate of potash. Dr. Mosler thinks that he is correct in saying that the parenchyma of the lungs is more tolerant than is generally believed, and that we are able, in certain cases, to act directly from without, through the thoracic parietes, as we would do in any other organ within reach of the surgeon. He thinks that it is not only cavities in the lungs that we can operate on in this manner, but that we may apply the same treatment to pulmonary inflammation, and treat them by medicated injections, as in other tumors or parenchymatous neoplastic growths.—*German Journal.*

Migration of White Corpuscles.—Dr. Thomas read before the German Association of Naturalists at Wiesbaden, a paper on the migration of white corpuscles into the lymphatics of the tongue of the frog. He injected the lymphatics of the living animal with an extremely dilute solution, not containing more than from one 1-2000th to 1-8000th part of nitrate of silver, and found that, with certain precautions, this did not lead to stasis of the blood in blood-vessels, but only to a lively exodus of the white corpuscles from their interior. After the lapse of some time, when the parts had begun to recover from the injurious effects of the injection, he was able to observe the reëntrance of the corpuscles into the lymphatic vessels through certain stomata in their walls, now marked and rendered distinct by a precipitate of the silver salt. In a second series of researches the lymphatics were injected with a dilute emulsion of cinnabar in a three-quarter per cent. solution of common salt. The cinnabar was in part deposited in the stomata of the lymphatics, and partly passed through them, and was deposited in the tissues in the form of small, round, cloudy patches. The evidence of the identity of the stomata brought into view by means of cinnabar, with those rendered apparent by means of nitrate of silver, is obtained by observing their peculiar grouping, and by the subsequent injection of nitrate of silver into the same vessels. The injection of cinnabar causes very little disturbance of the circulation. If a lively exodus of the white corpuscles from the blood vessels be produced by making an abrasion of the surface, the migrating cells quickly make their appearance in the stomata of the lymphatics marked out by the cinnabar. They then take up the particles of cinnabar into their interior, which causes them to lose their activity and accumulate in the stomata. They then appear in the form of cauliflower excrescences projecting into the interior of the lymphatics, which gradually break up into their constituent cinnabar-holding cells. These may be traced into the larger vessels, and from thence into the blood. In these researches a remarkable regularity or uniformity in the track pursued by the white corpuscles was observed. They pass away from the blood vessels nearly at right angles into the tissues, their course, however, being in a series of short zigzags. They all appear to travel at about the same pace.—*London Lancet.*

Addison's Disease without Bronze Discoloration of the Skin.—Dr. M. A. Leverau communicates to the "Gazette Hebdomadaire de Med. et de Chirurg." two cases of this disease occurring under his observation in the Military Hospital St. Martin, and the other in the practice of Dr. Kelsch, observed in the Military Hospital at Strasbourg. He draws the conclusions from these cases, as well as from analogous cases related by different authors, that: 1st. The bronze discoloration of the skin is not constant in Addison's disease; and 2d. That the existence of the disease may be diagnosticated, in the absence of the bronze discoloration, by the extreme asthenia and the uncontrollable bilious vomiting with which the subjects of it are affected.—*Exchange.*

Case of Blue Chromidrosis.—Dr. A. W. Foot communicated to the Medical Society College of Physicians a genuine case of this in a young lady aged seventeen, small for her age, with brown hair and eyes, of a habitually high complexion, nervous, predisposed to blush, sensitive, quick, and excitable, and who had applied herself too closely to her studies. The colored exudation affected principally the forehead and temples, it also appeared beneath the eyes, on the side of the nose, on the chin, and on the back of one hand. The blue discoloration continued to appear for a period of six months, but it is now more than three years since it was last seen.

Dr. F. ascribes the coloration of the skin in a majority of these cases to the formation of various kinds of indigo upon the outer surface of the skin; that these indigoes result from the oxidation, in various degrees, of the colorless indican, which is known to exist in the blood under many conditions, and in varying quantities, and which forms a very frequent constituent of urine, and of suppurations, and has also been found in milk. The indican, soluble in the alkaline liquor sanguinis, transudes at the thinnest and most vascular cutaneous territories, and when on the outer surface of the integument, it becomes exposed to the oxidizing influences of air, light, and heat, it is susceptible of forming indigo-blue, indigo-brown, or indigo-red, according to different circumstances.—*Irish Hosp. Gaz.*

Vaccinal Syphilis.—Dr. Tilbury Fox ("London Lancet") announces himself as a believer in the occurrence of true vaccinal syphilis, having been satisfied clinically that it does occur. "At the same time," he says, "I am quite sure that very many cases to which this designation is applied are in reality only instances of latent hereditary syphilis excited by the vaccination, and in which the vaccination can not in any way be fairly blamed for the occurrence of the syphilis. The cases which simulate true vaccinal syphilis are, however, often very successful counterfeits; and a difficulty in disproving that the vaccination itself conveys the syphilitic poison to the attacked arises oftentimes from the inability to get at any history of syphilis in the parent or parents. The latter naturally try to shift upon vaccination the blame which they should bear themselves."

He relates a case which illustrates some of these points in a very admirable manner. It counterfeited vaccinal syphilis; but careful inquiry elicited the fact that the child had no doubt been fully syphilized before it had been vaccinated, and that the vaccination only *excited* the outbreak of the eruption, The father blamed the vaccination, conveniently, as it turned out; for no doubt he had infected his wife just after marriage with syphilis.

Sulphate of Quinine in Small-Pox.—The Italian traveler and naturalist, Odoardi Beccardi, writes from the islands of the Indian Archipelago, that the small-pox prevails there, and that the Dutch treat it, and what is still more important cure it, with quinine. Taken in doses of from 60 to 100 grains, the quinine acts in such a manner as to make the progress of the disease very mild, the suppuration abundant, easy, and without pain. At the Dutch Hospital at Amboine, three hundred patients had been treated by quinine in this manner with only two deaths. Beccari himself was attacked by small-pox, and with this treatment easily triumphed over the disease.—*Press Medicale Belge. Translated by C. S. Fenner, M. D.*

The Results of Excision in Military Surgery.—The "Medical Times and Gazette" states that at the second Congress of German Surgeons a discussion took place on a paper read by

Professor von Langenbeck, on "The Results of Excisions Performed during the War." He observed that the unfavorable results of the excisions performed during the Schleiswig-Holstein war, as reported by Hannover, as well as the late observations collected by Kraatz, bearing on the ultimate utility of limbs so treated, had led most observers to prefer amputation. Langenbeck is, however, able to make a more favorable report, derived from his own military experience. He had met with several cases of excision of the shoulder and other joints in which very useful limbs resulted. Even the unsuccessful cases were not always to be attributed to the operation itself, but to the difficulty of applying appropriate apparatus in war time, or even to the interest which the patient had in maintaining his limb in such a condition that it would gain him a pension. Professor Busch, of Bonn, observed that civil practice had already taught us the difference there is in excisions performed in chronic disease or on account of injuries. While in the first case a stiff joint is formed, in which we can only obtain mobility with much trouble, when extensive injury has been present, it is difficult to procure a firm and useable joint. All kinds of means may have to be resorted to during perhaps a twelvemonth, before a loose joint is converted into a serviceable one. In the late war he found some of his patients upon whom he had performed excision in a miserable condition, which he attributed much to their frequent removals and their falling into the hands of successive surgeons. Professor Esmarch believed that political antipathy had a great deal to do with the statements of Professor Hannover, of Copenhagen. During and after the first Schleiswig-Holstein war he had had many opportunities of becoming acquainted with the views of the Danish surgeons on this subject, and always carried the conviction that they were determined to oppose the operation of excision. After the war, also, they attacked it on every opportunity. The same prejudice plainly prevailed also during the war of 1864. As in the first war, the Danish surgeons did nothing to restore the utility to limbs which had undergone excision in the German lazareths. Dr. Danzel could quite confirm Esmarch's statements, having found this prejudice prevail even when complete movability had been established in a case of excision of the elbow. In general he is content with a stiff joint, for the limb is usually of more utility than when this is movable.

The Advantages of the Galvano-Cautery.—Dr. Y. R. Le Monnier, of New Orleans, sums up the advantages of the galvano-cautery, in the "New Orleans Medical and Surgical Journal," September, 1873, in the following words:

The principal advantages of this method are the following:

1. No hæmorrhage. As the platina wire passes through the tissues it cauterizes and produces the coägulation of the blood and an obliteration of the vessels. It is not that all operations of this kind are exempt from hæmorrhage; for if we use a thin wire it will act more like the knife, and its passage is too rapid for the hæmostatic effect to take place. With a coarser wire, gently and slowly tightened, the cauterization will extend to quite a depth, and all effusion of blood is surely stopped.

2. The rapidity and energy of its action, and we might add the absence of all well-marked pain. These results are due to the instantaneous mortification of the tissues under the influence of an intense heat.

3. The exact limitation of the effects of the operation, and thereby the absence of an acute inflammatory reäction, either local or general. We have never to this day heard of an accident happening subsequent to the use of the galvano-caustic, and to take pyæmia as an example, we have seen many patients die in the hospitals of Paris of this disease, after the use of the knife.

4. The possibility of burning and of cutting deeply-seated parts which are absolutely inaccessible to the cutting instrument, or can not be reached without danger. But, to be able thus to manage electricity in the very depth of cavities, a special instrument was needed, the galvanic porte-ligature or cutting loop.

5. The production of healthy granulations, same as with the actual cautery.

6. Finally, to use the words of Middledorpf, "galvanism, substituted for the actual cautery, has the advantage of not offering to the sight the spectacle of a forge of cyclops fired up by a groaning bellows, from whence the surgeon, the red hot iron in his hands, precipitates himself on his frightened patient."

7. The instruments not in communication with the battery are introduced in a cold state; once in place, a pressure with the finger is sufficient to establish the current, which brings to them a most intense heat; in an instant, and at will, the current is interrupted, the instrument immediately cools off and is withdrawn.

Frequently Recurring Epistaxis Relieved by Ergot.—Dr. Andrew H. Smith, of New York, gives the annexed case in the "New York Medical Record."

Mr. C., aged thirty-seven, civil engineer, applied to me in the latter part of May, on account of bleeding at the nose, recurring daily, and sometimes two or three times a day. The amount of blood lost each time was trifling, but the resulting annoyance was very great. The patient, naturally of rather a delicate organization, was performing an excessive amount of mental labor, and his health had suffered considerably in consequence. Digestion was slowly and imperfectly performed, and he was much annoyed with flatulence disturbing his rest at night.

Direct and rhinoscopic examination showed no abnormal condition of the nasal mucous membrane, except that the portion covering the septum on the left side was, for a part of its extent, unduly red.

A variety of astringents were applied locally by means of both the brush and the syringe, and such general treatment was resorted to as the symptoms demanded. This course was followed persistently for two weeks, when the general health had somewhat improved, and the congested appearance of the nasal mucous membrane, as far as open to inspection, had disappeared. Still the hæmorrhage recurred as frequently as ever, being often apparently provoked by the very applications intended to prevent them.

I then prescribed the fluid extract of ergot, twenty drops to be taken three times a day. This was continued for ten days, with the effect of entirely restraining the bleeding from the time the first dose was taken. The medicine was then omitted, but in a few days the bleeding began anew. It was immediately arrested by a return to the medicine, and has not since returned, the drug being continued at gradually increasing intervals for nearly a month, when it was entirely discontinued.

The Use of Large Enemata.—The practical results of the recent discussion in the German medical papers on the use of large enemata seem to be as follows:

1. Enemata, if sufficiently copious, will reach the small intestine, the ileo-cœcal valve notwithstanding, provided there be sufficient propelling force, whether that be gained by a long column of fluid in the apparatus (as in the use of irrigators), or by the patient's position, with the pelvis elevated, favoring the descent of the fluid, or by repeated action of the injecting instrument.

2. Experiments have shown that it is neither necessary to use complex apparatus nor to put the patient into awkward and perhaps dangerous positions; since from three to five feet of pipe, with a funnel at one end and a suitable nozzle at the other, is all the apparatus we need; and the patient simply lies upon the back, the only pressure required being that of the column of fluid.

The real pressure we have to overcome is that of the patient's muscles—aided in some cases by gases in the bowel; for if any one will insert a tube into the rectum before the injection has come away, he will see the fluid come out in jets or spurts when the patient strains, and less markedly so at every descent of the diaphragm.

3. The safety and efficiency, or the benign action, of large enemata of water, gruel, and the like, are very striking; but we are strongly inclined, however, to believe that a very small quantity of soap, or of some neutral salt, is even less irritating to the mucous membrane than pure water alone.

To sum up all, large injections do reach the whole length of the large intestine, and beyond it; they are safe and speedy remedies for fæcal accumulations, for some forms of intestinal obstruction (noticeably intussusception) and internal herniæ; for the treatment of intestinal ulcers, of hæmorrhage from the bowels, and diarrhœa; for worms, especially oxyurides, and their congeners; as a means of stimulating and increasing the secretion of bile, and of introducing into the small intestine nutritious matters in a state easily susceptible of absorption.—*London Med. Record.*

Gurjun-Oil in Leprosy.—Dr. J. Dougall, of Port Blair, Andaman Island, has published a report of his experience with gurjun-oil in the treatment of leprosy. Of twenty-four cases under treatment during a period of six months, he says that all have been decidedly benefited. The oil is administered externally in combination with lime-water, and is also applied internally to the affected parts. Gurjun-oil is an oleo-resinous product of the *Dipterocarpus lævis* and other allied trees. Experiments with the new remedy are being made at the present time in St. Bartholomew's Hospital, London, and elsewhere.—*N. Y. Med. Journal.*

Petrifaction versus Cremation. Dr. Steinbeis, of Würtemberg, proposes to dispose of the dead by placing the body in a trough of cement, and then filling the space with liquid cement, which will harden and convert the whole into a solid mass of stone. The blocks thus obtained may be piled up, buried, or inscribed and set up to do duty as both tombs and tomb-stones. This method, if generally adopted, possesses some advantages for posterity, as future generations would probably use the obsolete blocks for building material.—*N. Y. Med Journal.*

MEDICAL NEWS.

'Nulla dies sine linea."

Louisville Medical College.—In addition to enlarging the lower lecture Hall to a capacity of 450, and furnishing it with chairs, a handsome Mansard roof has been placed upon the building (see illustration on cover), affording space in which 250 students can dissect at the same time. Daily clinics from 8 A. M. to 9 A. M. will be given in the College; these clinics being on the following branches: Surgery, Practice, Diseases of Women, Diseases of the Eye, Ear, and Larynx. The Faculty also offer the advantage of a superior Dispensary, established by them, and all of the hospital advantages furnished by this city. ——Dr. Charles T. Jackson, the eminent chemist of Boston, is hopelessly ill of disease of the brain.——Ernst Bock, the eminent pathologist of Munich, is dead; he died in his sixty-fifth year.——The Medical Press of this country offer the warmest wishes and kindest words for the "American Medical Weekly." They will please accept the sincerest thanks of the editor. The Weekly is just four weeks old. It has over four hundred bona fide subscribers.——The celebrated Mr. Thos. Banting left £20,000 for building a convalescent home at Worthing, to be called the Banting Memorial. When are we to have convalescent homes connected with our American Hospitals?—*Boston Med. and Sur. Jour.*——*The London Hospital Sunday Fund.*—The latest accounts state that the sum thus far received at the Mansion-house exceeds the entire result of last year's appeal; about £28,000 having been paid in. A much larger sum, however, was expected in this, the second year, of the movement.—*Ex.*——Prof. Schiff, of Florence, "has demonstrated the superiority of ether to chloroform, on the ground of safety to human life . . . that ether is unattended by any hurtful result, unless through gross carelessness . . . is so convinced of this as to affirm that every case of death resulting from the application of ether is wholly due to the incompetency of the physician by whom it may have been administered."—*Ex.*———Prof. Hughes Bennett, owing to a continuance of ill health, has resigned the chair of the Institutes of Medicine, which he has held now for twenty-six years. Already there are several candidates in the field. Among the names mentioned, are Dr. John Cleland, Professor of Anatomy in Queen's College, Galway; Dr. J. B. Pettigrew, Pathologist to the Edinburgh Infirmary; Dr. J. G. McKendrick, former assistant to Dr. Bennett and others.—*Ex.*———*International Medical Congress.*—The organization of an International Medical Congress at Brussels, in 1875, is being carried out with great activity. The President is to be Dr. Vleminckx, President of the Academy of Medicine, who has already presided over other scientific congresses with tact and authority. The Belgian government has promised its coöperation, but it belongs specially to the members of the Medical Profession to set their shoulders to the wheel in order to make the scheme work.—*Press and Circular.*———*The International Sanitary Conference.*—The International Sanitary Conference at Vienna has decided that only in India is cholera endemic, and its outbreaks in Europe are due to importation from there. Dr. Dickson stated at length the regulations of the Indian government for the improvement of the sanitary condition of India. The Conference has rejected the theory of Pettenkofer that cholera is transmitted by healthy persons as well as patients. They agreed that living animals and foods could convey infection.—*Ibid.*———*A New Medical School in Indiana.*—Dissensions among the Faculty of the Indiana Medical College have led to the organization of a new Institution, to be called the Indiana College of Physicians and Surgeons, and to be established also at Indianapolis.—*Ex.*———*Food for Infants.*—Apropos of the recent evidence as to the chemical value, or rather valueless nature, of the foods advertised for infants, the "London Standard," alluding to the enormous amount of starch contained in these diets, says it is identical with the material used for stiffening our shirts and collars, and has probably by this time stiffened out a good many infants.—*Ex.*———*Death of an Infant from the Application of an Acetate of Lead Lotion to the Nipples.*—M. Bouchat mentions the case of a lady who, having used a lotion called "Eau de Madame Delacour," a favorite quack remedy in Paris for sore nipples, omitted to wash it off before putting the child to her breast. The child was shortly after seized with violent colic, and died in a few days with all the usual symptoms of lead-poisoning.—*Gaz. des Hop.*———Spongy iron is produced by calcining powdered iron ore with charcoal. Such iron forms a most excellent filter, more powerful, it is said, than even animal charcoal. It is said that even sewage-water filtered through a layer of this substance is completely purified, and will remain sweet for almost an indefinite time.—*College Courant.*———*Honors, etc.*—Professor Biermer, of Zurich, has been invited to accept the Chair of Clinical Medicine in the University of Breslau.———Mr. Alfred Cooper, F. R. C. S., has received from the Emperor of Russia the decoration of the Order of St. Stanislaus.—We regret to learn from the "Lancet" that Sir Charles Locock is seriously ill with cardiac disease.—Prof. Cohnheim has recovered his health sufficiently to enable him to resume his professional duties.—The degree of D. C. L., of Oxford, has been conferred on Prof. Carus, of Leipsic.—Prof. Lebert, of Breslau, is about to retire.—Mr. Erichsen, the distinguished surgeon and author, intends to visit the United States on a pleasure tour—*N. Y. Med. Jour.*———*Long Island Hospital College.*—The recent commencement of this College was in every respect successful and encouraging. The graduating class numbered fifty-seven, the largest since the College was established. The Faculty is composed of able and experienced teachers, and every year some improvement is made in regard to clinical instruction, for which the Long Island Hospital affords abundant opportunities.—*Ibid.*

EDITORIAL.

"Nullius addictus jurare in verba magistri."—Hor.

THE McDOWELL MEMORIAL.—By referring to page 203 of this number, the reader will find a memorial circular addressed to the Medical Profession throughout the civilized world. The circular describes so well its purport, that there is nothing that can be judiciously added. The paper and its object speak trumpet-tongued for themselves. Surely, the American physician can have no appeal to arouse his professional pride, his patriotism, his sense of justice, and his emotions of generosity, if this circular be ineffectual. The physicians of Europe will also find in it an appeal to their catholic professional pride, their philanthropy, and love of justice, which must secure the most immediate and welcome results. Woman, too, whether in her own person or that of her sex, the gainer by McDowell's triumphs, must glory in this opportunity of offering her sincerest blessings, her choicest offerings upon such a memorial altar. It is a tribute worthy not only of woman; not only of the Profession everywhere; but of humanity. May it be so. May the day be near, indeed, when this memorial shaft, erected to a great man long neglected, shall, like the Egyptian statue of Memnon, sing its hymnal of praise, as touched by the rays of the rising sun; and at sunset, when the evening shadows gather around all else, may its illuminated summit testify, in its proud altitude, the measure of mankind's gratitude for the life of a gifted man, and for the labors of an immortal physician. It is a privilege for every one to contribute to such a cause. The circular explains how this may be done. The Medical Press, both in Europe and America, are requested to publish the circular, and to call attention to it.

FEMALE PREGNANT CATS.—Dr. H. C. Wood, Jr., of Philadelphia, says (in a recent number of the "Philadelphia Medical Times") that as the "subject of the uterine action of quinine is of the greatest practical importance, and is certainly in a very unsettled state," he has thought that physicians should make experiments upon pregnant animals to decide the question. He, with this in view, now makes public the two following experiments. He tells us that he gave a dose of quinine, twenty grains, to a "female (?) pregnant cat," and that the cat died. He then gave another dose of the same amount to another pregnant cat. Dr. Wood does not in this instance, as he does in the first, mention the sex of his patient, but this is assumed. This cat lived. These results, so eminently satisfactory and decisive, should settle the vexed question. Western and Southern physicians should feel glad and grateful that they have in the medical ranks one who, as truly a "representative of the Profession," is able to conduct such original and decisive experiments, and who is kind enough to publish them for the instruction of his less fortunate brethren of the South and West. When the editor of the "Philadelphia Medical Times" writes such defamatory articles of the physicians of the South and West as he has recently done, he should be more cautious in coming before the public with these decisive experiments upon "female pregnant cats." It may be an expression generally used by representative men, but it will nevertheless excite ridicule and laughter elsewhere.

SPIRITUALISM.—It was on a gusty afternoon in March, when it was determined that an invitation to visit a noted spiritualist in an adjoining town would be accepted. Taking the cars and then the boat, the transit was speedily accomplished. Soon finding the house indicated, the bell was rung, and almost immediately answered. The card presented was sufficient. Guided up an easy flight of stairs, admission was obtained into the mystic chamber. The attendant vanished, and striking a silver bell, as a signal, the folding doors were thrown back, and there stood the weird genius of the abode. What a scene was there! The chambers, screened from the light of day, were brilliantly lighted; rainbow hues being reflected in myriad multiplication as the light danced and sparkled through the crystal prisms pendant from chandeliers of matchless beauty. The soft, velvet carpet made even motion silent. The luxurious furniture; the beautiful paintings; the richly bound volumes scattered about the cases and tables; the spicy and intoxicating aroma emanating from pastilles slowly burning on marble tables; these made complete a scene of fable-like luxury. In the midst of all these stood the genius of the scene; the Spiritualist; a woman of rare and matchless beauty; her Moorish cast of feature and Moorish costume forming a picture perfect and appropriate. Around her neck hung jewelled amulets inscribed with the mystic abracadabra of the ancient alchemists, while in her hands was borne the mystic and omnipotent wand. One glance of mutual scrutiny, and she exclaimed: "What would'st thou?" The reply was as quick as the question: "To see a messenger from the spirit land." Seating herself at the table and screening the light, she struck three times upon a curiously inscribed vase all covered with cabalystic figures. Almost immediately there came the responsive rap, when the Spiritualist exclaimed: "Your wish is fulfilled; the spirit awaits you; say on." The dialogue was as follows: "Oh! spirit, who art thou?" Quick came the answer, "One like thyself; a physician once, but now a dweller in the mystic land of dreams." "Spirit, art thou happy?" "No; not happy; troubled, remorseful; I have a message for thy clan and mine." "Spirit, say on." "Like many, I was ambitious of knowledge; that knowledge which, beyond all others, the physician prizes highest; the knowledge of his art, his science. I sought to obtain this from all sources; from books, ancient and modern; from the literature of the past, from the current literature of the day. I was an earnest and greedy student. I knew all of the leading publications of the day; their authors; their editors. I know who thou art. I obtained much from others, as sent abroad by thee. Month by month there came the welcome messenger, freighted with the food I so eagerly devoured. I felt the preciousness and the value of the knowledge I was so bountifully harvesting. I felt that for it all there could be no recompense; that demanded being so paltry; so insignificant.

Still, with this constant consciousness, the trifling recompense remained in my hands. Months rolled on, and this honorable duty of remuneration was still unperformed. In the midst of my work, my dreams, I was suddenly cut down, and now, in the land of spirits, I know no rest." "Oh! spirit," said the hearer, "say no more; this thy testimony is alone abundant reward, if thou but promise that it may be made known." "Make it known; tell my brethren of my fate; tell them if they would know peace hereafter to take warning in time; to be wise, but first to be just." "Spirit, be thou happy; thy message shall be delivered, and like that of the missionary, it will lead to repentance; to good works." The writer awoke; the dream was over; but reader (in the language of Byron) make it "not all a dream," but a lesson.

BURN-BRÆ.—It is a source of real pleasure to call the attention of the public, and especially of physicians, to the Private Hospital for Mental Diseases, owned and conducted by Dr. R. A. Given, its Medical Superintendent. This hospital (Burn-Bræ, Kellysville, Delaware county, Pa.,) is quite near Philadelphia, and surrounded by beautiful scenery and attractive country. It is a model in its structure and management. Examined repeatedly by the most distinguished physicians of Philadelphia, it has always received, and very justly, their highest encomiums. Dr. Given enjoys the confidence not only of his patrons, but of the best medical men in his profession. He is known by the editor of this Journal, and is by him unqualifiedly commended to the public. The readers of this work know that it is impossible for any one advertising in this Journal to purchase an editorial notice on any terms, and that when such notices are given, they are given always gratuitously, and only when they are fully deserved. With this explanation, the public will certainly receive this notice with entire confidence; it is fully deserved, and is given with pleasure.

GUARANA.—Those who have used the guarana as a remedy for sick headache will be pleased to learn that Messrs. Parke, Davis & Co., of Detroit, have commenced manufacturing a fluid extract of this drug. As there are some disadvantages attending the administration of the powder, the fluid extract will no doubt be given a full and fair trial. As the Profession are much interested in all preparations claiming to be remedies for headache, it is respectfully asked that the readers of this Journal will furnish for it the results of their use of the guarana. There is no House whose preparations can be more confidently relied upon, and physicians purchasing this fluid extract may be certain that they are obtaining a genuine preparation. Those who wish to read anything in regard to the guarana will find interesting notices of it in the last edition of the Dispensatory, and in Braithwaite's Retrospect for the year 1873–4.

MEDICAL COLLEGE OF THE STATE OF SOUTH CAROLINA, AT CHARLESTON.—It is a source of pleasure to see that the Faculty of this College have withdrawn their offer, of "free teaching" with a matriculation fee at the same time of $20. A year since, this Journal commented upon the character of the free teaching offered, and those responsible for the management of the College mentioned thought these comments harsh and unjust. Time has demonstrated the justice of the criticism, and the recovered sound judgment of the Faculty. This Journal takes occasion to again disclaim any intention of injuring the College named, or of offering its Faculty the least discourtesy. It exercised a right which it will always exercise, the right of independent criticism; and while in so doing it will endeavor to be always courteous and just, it may be as well understood that no menacing, no rude or unfair replies to its criticisms will in the least change its pre-determined course. It expresses the cordial and sincere hope that the College mentioned may reap the abundant success which its present Faculty deserve.

THE AUGUST JOURNAL.—The reader will observe that this number is smaller than usual. It is thus issued in order that future numbers may be promptly published, and for the further reason, that the September Journal will be larger than usual.

Even with a small August Journal, the July and August numbers together will be found to give more than the number of pages to be justly expected. When the September number is issued, the three Journals (July, August, and September,) will afford to the subscribers an amount of matter far in excess of that which is due.

Some are anxious lest the Weekly will injure the Monthly by detracting from it valuable material and labor necessary for it. The patrons of these Journals may feel assured that this anxiety is groundless. There is ready for use now as much original and selected matter as these two Journals can possibly consume; so it will be always. As to the labor withdrawn from the Monthly, the labor upon it has rather been increased. It shall always receive the fullest and most scrupulous attention. The Weekly, of course, will be faithfully nursed and fully developed.

Promises have been made that the Monthly shall be improved. The readers will see in the September number, and future issues, that this promise has been even more than fulfilled. The editor promises the fullest liberality and labor, and asks only generous and prompt support.

GRATUITOUS RULES FOR SUCCESS OF NEW MEDICAL COLLEGES.—1. Much honesty can be shown in deciding upon the name. Have the title in part that of another College in the same city whose reputation is already made, and add to this the name of a large City Hospital. This is very honorable.

2. Build near this Hospital a house, and say it is a College offering the clinical advantages of 5,000 patients.

3. If there is no official connection between the Hospital and the College, say that there is, and that to obtain this connection, the Trustees of the new College placed their building where it stands. This falsehood will command respect.

4. If there is no Museum or Appointments, say that the College is with these fully supplied. Truth and justice sanctions this.

5. If there is no Dispensary, claim that there is.

6. If there are no clinical advantages or Clinics, say that these are abundant. Such a course is just and fair.

7. If the Faculty are untried, say that they are able. Gentlemen will respect such a statement and such an Institution.

THE RICHMOND AND LOUISVILLE

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ORIGINAL COMMUNICATIONS.

"Qui docet discit."

ART. I.—URONOLOGY AND ITS PRACTICAL APPLICATIONS—A GUIDE TO THE EXAMINATION OF URINE AND ITS DIAGNOSTIC VALUE, WITH EXTRACTS FROM THE WORKS OF THE MOST MODERN INVESTIGATORS. By GEORGE M. KOBER, M. D., Washington, D. C.*

With the progress of medical science, the study of urine has been well presented, and I am glad to say, with the most satisfactory results. It seems strange that medical men have not heretofore attached more importance to urine in diagnosis; but when we remember that there were and are a class of physicians who pretend to diagnosticate and treat their cases by an ocular inspection only of the fluid, we need not wonder that the earnest and educated physician, as well as the enlightened public, became disgusted with the subject of "urinary diagnosis." It would be simply absurd to attempt to diagnosticate every case by the character of the urine, or to resort to an examination in every simple and well-pronounced disease; yet the value of urine in diagnosis is certainly great, and will aid and supply us with light in obscure cases of the many diseases of mankind.

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* So much time and labor have been expended upon this very valuable series of papers, that the editor of this Journal has had prepared, as an accompaniment, accurate plates of all normal and abnormal urinary deposits. These beautiful and complete plates are copied from Neubauer's and Vogel's masterly work on Urinary Analysis, and Otto Funke's valuable Physiological Atlas. The whole will form the most valuable guide to be found in the study of urines and the varied urinary deposits manifested by the microscope.—E. S. G.

It is difficult to say how much information can be obtained from an examination of urine. We can form some idea, however, when we remember that the kidney and its functions are important to the human economy, and that disease of this or any other organ or part of the body would materially influence the quantity or quality of the excreted fluid, and thus indicate not only the condition of the secreting organ, but also the state of the blood, as well as other changes which may be going on in the body. We not only obtain valuable information from an examination of urine in disease, but can judge the condition of the system in general. Thus the surgeon often receives encouragement to operate, if the urine is in a normal condition, or a warning, by some abnormal ingredient in the fluid, not to perform the operation.

During my studies of general and special pathology, I was impressed with the importance of a knowledge of normal and abnormal urine, and became convinced that the study of the changes of this excretion during disease would prove an invaluable aid in diagnosis, prognosis, and treatment.

But I also felt that the student and practitioner were in want of a concise guide to the examination of urine and the study of its pathological indications. I therefore determined to gather as much information on the subject as time would permit.

It has been my aim in these papers to arrange and adapt from various sources the points of most importance to the physician, not the professed chemist, and I can but hope that this will meet with the approval of the Profession.

Much of the information contained in this "Guide" is obtained from Dalton's "Physiology," Neubauer's and Vogel's "Analysis of Uurine," Thudichum's "Manual of Chemical Physiology," Bird and Beale on "Urinary Deposits," Flint's and Aitken's "Practice of Medicine," and last, but not least, DaCosta's "Medical Diagnosis."

I have carefully weighed the statements of these eminent writers, and have taken the liberty to differ from them whenever I had good reason to do so.

Normal Urine.—Before we can appreciate the changes which take place in urine during disease and their pathological relations, it is necessary to be acquainted with physiological urine and its chemical composition. We knew that the functions of the kidney are to eliminate from the system water and nitrogen, and to take from the blood many of its salts and certain effete materials, whose presence would otherwise prove injurious to the economy. This beautiful and interesting process is constantly going on in the kidneys, the excreted fluid is brought from there to the bladder, from which it is finally discharged.

Urine is chemically composed, according to the analyses of Berzelius, Lehman, Becquerel, and others, of the following constituents:

Water,	938.00
Urea,	30.00
Creatine,	1.25
Creatinine,	1.50
Urate of soda,	1.80
Urate of potassa,	
Urate of ammonia,	
Coloring matter and mucus,	.30
Biphosphate of soda,	12.45
Phosphate of soda,	
Phosphate of potassa,	
Phosphate of magnesia,	
Phosphate of lime,	
Chlorides of sodium and potassium,	7.80
Sulphate of soda and potassa,	6.90
	1000.00

Some physiologists regard traces of lactic acid and oxalate of lime as normal constituents. I need hardly say that the proportionate quantity of the above ingredients is not absolute, but only approximate, and that they vary from time to time, within certain physiological limits, like the ingredients of all other animal fluids.

Water.—We find that the quantity of water is sufficiently large to hold all the solid constituents in solution, being in excess of nature's want, it is eliminated, like any other useless material in the human economy. The quantity of water in urine varies considerably in health; of its variations, I shall speak more fully hereafter.

Urea.—$\genfrac{}{}{0pt}{}{\mathrm{C\,H^4N^2O\ [new].}}{\mathrm{C^2\,H^4\,N^2\,O^2\ [old.]}}$ Is a neutral, crystallizable, nitrogenous substance, readily soluble and easily decomposed by external influences. The blood is the true source from which it is supplied to the urine; according to Picard it exists in the blood in the proportion of 0.016 per thousand. Owing to the constant elimination by the kidneys, an accumulation in the circulating fluid is impossible, but this condition takes place when the kidneys are extirpated, the renal arteries ligated, or the functions of the organ, by inflammation (or otherwise) interfered with. Under such circumstances it has been found in the proportion of 1.4 per thousand. Urea is doubtless the product of the change of nitrogenized substances, and will hence vary considerably with the food partaken of, as well as with the activity of transformation of structures in the system. The proportion found in urine is 30 parts per 1000. The quantity excreted by an adult in twenty-four hours is stated by different authors as 408, 487, 500, 542, and 670 grains. Mental and bodily exercise, age, weight, and sex, and many other influences, will produce variation. The following table of Lehman illustrates variation produced by the differet kinds of food:

Kind of Food.	Daily quantity of Urea.
Animal,	793 grains.
Mixed,	437 "
Vegetable,	337 "
Non-nitrogenous,	231 "

The diurnal variation is also to be remembered by the physician; a smaller quantity is produced during the sleeping hours than during the day; this is probably due to the greater activity, during waking hours, of the muscular, mental, and digestive functions. This difference is observed in patients confined to bed. More urea is produced in the latter half than in the earlier half of the day; and the greatest quantity is discharged during the four hours from 6½ to 10½ A. M.

To obtain urea from the urine, evaporate the latter while fresh in a water-bath until it has a syrupy consistency. It is then mixed with an equal volume of nitric acid, which forms nitrate of urea. This salt being less soluble than pure urea, rapidly crystallizes, after which it is separated by filtration from the other ingredients. It is then dissolved in water and decomposed by carbonate of lead, forming nitrate of lead, which remains in solution, and carbonic acid which escapes. The solution is then evaporated, the urea dissolved out by alcohol, and finally crystallized in a pure state. Urea has no tendency to spontaneous decomposition, and may be kept, when perfectly pure, in a dry state or dissolved in water, for an indefinite length of time. If the watery solution be boiled, however, the urea is converted, during the process of ebullition, into *carbonate of ammonia.* One equivalent of urea unites with two equivalents of water, and becomes transformed into two equivalents of carbonate of ammonia.

Organic impurities, acting as catalytic bodies, will induce the same change, if water be present. Animal substances in a state of commencing decomposition are particularly liable to act in this way. In order for this conversion of the urea to take place, it is necessary that the temperature of the mixture be not far from 70° to 100° F.

Creatine.—$\begin{matrix} C^4\,H^9\,N^3\,O^2 + H^2\,O \text{ [new formula].} \\ C^8\,H^9\,N^3\,O^4 + {}^2\,H\,O \text{ [old formula].} \end{matrix}$ This is described as a neutral crystallizable substance, soluble in water, slightly so in alcohol, and not at all in ether. It is derived from the disintegration of muscular tissue; it is found in the blood, its proportion, however, is not determined; in the muscles it is found in the proportion of about 0.67 parts per thousand; in the urine in proportion of about 1.25 parts per thousand.

It is converted into creatinine by being heated with strong acids, when it loses two equivalents of water. Boiling it with an alkali will either convert it into carbonic acid and ammonia, or will decompose it, with the production of urea and an artificial nitrogenous, crystallizable substance, called *sarcosine.*

Creatinine.—$C^4 H^7 N^3 O$ [$C^8 H^7 N^3 O^2$]. Is also a crystallizable substance, the only difference between it and creatine consists in its having two equivalents less of water. It is found, like creatine, in the blood, muscles, and urine, and is probably produced by transformation of parts of creatine, since we find it in less quantity than creatine in urine. It is more soluble in water and alcohol, and slightly so in ether. It has a distinct alkaline reäction.

Urate of Soda.—This is a neutral salt, formed by the union of soda and a nitrogenous animal acid, known as *uric acid* $C^5 H^4 N^4 O^3$ [$C^{10} H^4 N^4 O^6$]. Many authors consider uric acid as though it were itself a proximate principle and a constituent of the urine; but it can not properly be regarded as such, since it never exists in a free state in normal urine, and its presence can only be determined by the addition of strong acids, which will decompose the soluble *urates* and liberate *uric acid.* Whenever uric acid is present, therefore, it has been produced by the decomposition of the urate of soda.

Urate of soda is found in the urine and blood, and is, like urea, the product of the metamorphosis of tissue, from which it is absorbed by the circulating fluid and carried to the kidney, there to be eliminated in company with other ingredients of the urine. The average daily quantity eliminated by the healthy human adult is, according to Lehman, twenty-five grains. This substance exists in the urine of the carnivorous and omnivorous animals, but not in that of the herbivora. In the latter, it is replaced by another substance, differing somewhat from it in composition and properties—viz., *hippurate of soda.* The urine of herbivora, however, while still very young, and living upon the milk of the mother, has been found to contain urates. But when the young animal is weaned, and becomes herbivorous, the urate of soda disappears, and is replaced by the hippurate. [Dalton.]

Urates of Potassa and Ammonia.—These closely resemble urate of soda in their physiological relations; they are found in small quantities in urine. The deposit formed by their precipitation is of a pink color, sometimes brown, or even white. They are decomposed by strong acids with the formation of crystals of uric acid. Both are soluble in hot water, but their deposit takes place as soon as the temperature is lowered.

The substances now described resemble each other, as they all contain nitrogen, are crystallizable, and soluble in water. They are the result of the wear and tear of the body, produced by the decomposition or catalytic transformation of the organic or albuminoid constituents of the body, and being taken up by the blood as effete material, are carried to the kidney, there to be removed. These excrementitious matters are themselves decomposed, after being expelled from the body, under the influence of air and moisture, so that the resolution and destruction of the organic substances are at last complete.

The coloring matter of urine consists of a substance called *urophæin* [*urohæmatin*]; and, according to Heller, *uroxanthin* [*indican*, after Schunk]. This latter pigment is found only in small quantity. In normal urine, it is decomposable by strong acids and heat into a red pigment *urrhodine*, and a blue pigment *uroglaucine*. The former identical with indigo-red, and and the latter with indigo-blue. The pigment urohæmatin contains iron, and closely resembles the pigment of the blood. Dalton describes the coloring matter, *urosacine*, as yellowish-red, readily adhering to insoluble matters, and that these, when precipitated, are more or less deeply colored, according to the quantity precipitated with them. Thudichum asserts that a substance called by him "*urochrome*," is the only normal coloring pigment in the urine, and that all other named pigments are only products of decomposed *urochrome*.

Be this as it may, other writers are nevertheless correct as to the significance they attribute to these coloring pigments in disease. It is supposed that they are the product of disintegrated red blood corpuscles; certainly, a very plausible theory. In health, the color of urine is influenced by various sorts of food and drink.

The mucus in normal urine is derived from the lining membrane of the urinary passages, and is interspersed with epithelial cells from the kidneys, ureters, and urethra. It can only be detected after the urine has been allowed to settle in a glass tube, where it may be perceived as a flocculent, cloudy mixture at the bottom.

When I come to speak of the changes in the urine during decomposition, it will be seen that the mucus plays an important part in the process of fermentation, etc. Not unfrequently spermatozoa are seen in it under the microscope.

Biphosphate of Soda is held in direct solution in the urine; it is this salt which gives the urine its acidity, as there is no free acid present in its recent condition. [See page 234.] It is most likely derived from the neutral phosphate of soda in the blood, which is decomposed by the *uric acid* at the time of its formation, thus producing a *urate of soda* and converting a part of the neutral phosphate of soda into the acid biphosphate.

The Phosphates of Lime and Magnesia, the earthy phosphates, exist in urine by indirect solution. They are nearly insoluble in water, but are kept in solution in the urine by the *acid phosphate of soda.* They are derived partly from the food, but mostly from the disintegration or oxidation of disintegrated albuminous substances, specially of the nerve structures. When the urine is alkaline, they are deposited as a whitish precipitate, giving the urine a turbid appearance; when the urine is neutral, they are still held in solution, to some extent, by the chloride of sodium, which has the property of dissolving a small quantity of the phosphate of lime.

The Phosphates of Soda and Potassa are derived from the food and the disintegration of albuminous substances, and are held in solution by the water of the urine.

The Chlorides are derived from the food and blood; the amount eliminated in health will greatly depend upon the amount ingested.

The Sulphates are found in large quantities in urine, and are held in solution like the alkaline phosphates.

Urine thus composed constitutes *healthy urine,* which is an amber-yellow colored fluid, of an acid reäction, sometimes, however, it is neutral, and occasionally slightly alkaline. The average quantity of urine passed by a healthy adult *per diem* is between thirty and forty ounces, and its mean specific gravity is 1024. Vogel gives the amount of urine passed *per diem* as fifty-seven ounces; but I am inclined to believe, since his experience was chiefly limited to the male sex of Germany, who are for the most part beer or wine drinkers, that this average amount is by no means true of the adults in this country. The quantity and specific gravity of urine vary in health considerably; the physician should therefore not be too hasty in suspecting trouble because the specific gravity is high or low; he should remember that there are certain circumstances and conditions of the system (not at all pathological) which will tend to materially influence the *quantity* and *density* of the eliminated fluid; as for instance, if a less quantity of drink is taken into the system, or if the lungs, skin, or intestines perform their function with unwonted activity, a proportionately smaller amount of water will be eliminated by the kidneys; and as the solid ingredients of the urine remain the same in quantity, and are held in solution by the water, this solution becomes necessarily more concentrated, and its specific gravity therefore high. Then again we find, that if a large quantity of fluid is taken into the system, the temperature being low and the function of the skin diminished, the quantity of urine will be proportionately large and its specific gravity low. These changes in the specific gravity are not then produced by the quantity of solid matters, which under these circumstances remain the same in the twenty-four hours.

The physician in examining urine should also bear in mind its diurnal variation, both in specific gravity and acidity, and that the quantity of each and all of its ingredients may vary to a certain extent, without any morbid condition of the system. The urine which has collected during the night in the bladder and is voided early in the morning, is more dense, of a higher specific gravity, and more acid than that discharged in the forenoon, and the second discharge is often neutral or alkaline in reäction. During the middle of the day, it again becomes denser, of a deeper color, and increases in acidity. All these properties become still more strongly marked during the afternoon and evening, and towards night the urine is again deeply colored and strongly acid, and has a specific gravity of 1028 or 1030.

The urine as a general rule is discharged from the bladder five or six times in the twenty-four hours.

The following tables, taken from Dalton's Physiology, will serve to show the general character of the variation in reäction and gravity:

OBSERVATION I.—MARCH 20.

Urine of first discharge, acid, specific gravity 1025.
" second discharge, alkaline, specific gravity 1015.
" third discharge, neutral, specific gravity 1018.
" fourth discharge, acid, specific gravity 1018.
" fifth discharge, acid, specific gravity 1027.

OBSERVATION II.—MARCH 21.

Urine of first discharge, acid, specific gravity 1020.
" second discharge, neutral, specific gravity 1022.
" third discharge, neutral, specific gravity 1025.
" fourth discharge, acid, specific gravity 1027.
" fifth discharge, acid, specific gravity 1030.

In examining urine, therefore, the physician should never be satisfied with the result of only one examination, but repeat the same, and then seek a conclusion.

RE-ACTION OF URINE.

I observed before that normal urine reddens blue litmus paper, showing its acid reäction; often, however, it is neutral, and again slightly alkaline. If no food has been taken for hours, it becomes highly acid, whereas, after meals, or while digestion is still going on, it is but faintly so. Urine after being discharged from the bladder remains generally acid for a day or more. The normal acid or alkaline reäction of urine seems to depend upon the state of the blood. Under ordinary circumstances, the kidneys secrete an acid urine from an alkaline blood, showing that they have the power peculiar to their cells to separate the acid salts from the blood. When, however, the blood after the entrance of newly digested food becomes strongly alkaline, the acid reäction of the urine ceases, and it becomes neutral or slightly alkaline. The alkaline reäction of urine may also be due to the presence of a fixed alkali, like the carbonate of potassa or soda, or a volatile alkali, due to the decomposition of urea into carbonate of ammonia. In the first instance, if red litmus is dipped into the urine, it turns blue and remains so after drying. In the second instance, it becomes also blue, but its original red tint returns after the paper has been dried.

Alkalinity of urine from a fixed alkali, the result of fruits, certain articles of food and medicine, is not indicative of a morbid condition of the system. I may mention here that the salts of the organic acids, as the lactates, malates, acetates and tartrates of soda, potassa, etc., when taken into the system, are replaced in the urine by the carbonates of the same bases, and of course render the fluid alkaline. Dr. Bence Jones found that two drachms of tartrate potass. dissolved in four ounces of water and taken into the circulation, rendered the urine alkaline in thirty-five seconds; after two hours, the alkaline reäction ceased. Lehman found in one instance by experimenting upon a person with congenital extroversion of the bladder, in whom the orifices of the ureters were exposed, that the urine became alkaline in the course of seven minutes after the injection of half an ounce of acetate of potassa. I shall speak of this subject under abnormal urine in a subsequent paper, and point out the extent of alkalinity and its continuance as consistent with health. The alkalinity of urine depending upon a volatile alkali is always to be viewed as pathological.

Urine in its healthy and recent condition is affected by chemical and physical reägents in the following manner: Boiling the urine of an acid reäction produces no visible change; if it be neutral or alkaline, the mixture becomes turbid, particularly so when the earthy phosphates predominate, since these salts are less soluble at a high than at a low temperature.

The addition of mineral acids will first alter the color of the urine, which assumes a brown color by the use of sulphuric acid, and determines thereby the presence of the coloring *urhœmatin.* The *hydrochloric* and *nitric* acids decompose the *urates* and deposit *uric acid* in a crystalline form upon the sides and bottom of the glass tube; these crystals are most frequently transparent rhomboidal plates, or oval laminæ with pointed extremities. The microscope shows them very clearly; frequently the crystals are tinged of a yellowish hue by the coloring matter of the urine, which unites with them when they are deposited. Not unfrequently they are arranged in radiated clusters, or small spheroidal masses, so as to present the appearance of minute calculous concretions; the variance in size and form depends upon the time occupied in their formation.

If *potassa* or *soda* be added to urine, so as to neutralize its acid reäction, it becomes immediately turbid, owing to a deposit of the *earthy phosphates,* which are insoluble in alkaline fluids.

The solution of *chloride of barium* precipitates a deposit soluble in free acids [*the phosphates*], and a deposit insoluble in acids [*the sulphates*]. Nitrate of silver precipitates a yellow deposit soluble in nitric acid and ammonia [*the alkaline phosphates*], and a white precipitate insoluble in nitric acid, but soluble in ammonia [*chloride of sodium.*]

Urine contains certain organic substances, which possess the power of interfering with the mutual reäction of starch and iodine, and even of decomposing the iodide of starch after it has once been formed. This peculiar action of urine was first noticed and described by Professor Dalton. The interference occurs in all cases in which iodine exists in the urine.

When it has been administered as a medicine, it exists in the form of an organic combination; and in order to detect its presence by means of starch, a few drops of nitric acid must be added at the same time, so as to destroy the organic matters; after which, if iodine is really present, the blue color immediately appears.

Urine also possesses the property, which depends upon some of its organic ingredients, of interfering with Trommer's test for grape sugar. If clarified honey be mixed with fresh urine, and sulphate of copper with an excess of potassa be afterwards added, the mixture takes a dingy, grayish blue color. On boiling, the color turns yellowish or yellow-brown, but the suboxide of copper is not deposited. In order to remove organic matter and detect the sugar, the urine must be first treated with an excess of animal charcoal and filtered. By this means the objectionable organic substances are retained upon the filter, while the sugar passes through in solution, and may then be detected as usual by Trommer's test.

ACCIDENTAL INGREDIENTS IN URINE.

Often medicinal and poisonous substances, after having been introduced into the system, are found in the urine. This is of importance to the physiologist and chemist, and in many cases to the physician. From the presence of certain medicines in the urine, we may know whether to continue them or not. For instance, if nitre, digitalis, or strychnine be given, they should be detected in the urine; their absence would prove their accumulation in the system, and the timely discovery of such a condition will sometimes prevent a fatal result. Substances which tend to unite strongly with the animal matters, and to form with them insoluble compounds, such as the preparations of iron, lead, silver, arsenic, mercury, etc., are least liable to appear in the urine. They may occasionally be detected in this fluid when they have been given in large doses, but when administered in moderate quantity are not usually to be found there. Most other substances, however, accidentally present in the circulation, pass off readily by the kidney, either in their original form or after undergoing certain chemical modifications.

Ferrocyanide of potassium, when introduced into the circulation, appears readily in the urine. Bernard* observed that a solution of this salt, after being injected into the duct of the submaxillary gland, could be detected in the urine at the end of twenty minutes. Iodine, in all of its combinations, is found in urine after it has been given. Dalton found, after the administration of half a drachm of the syrup of iodide of iron, iodine in the urine at the end of thirty minutes, and it continued to be present for nearly twenty-four hours. Quinine, ether, chloroform, tannin, and carbolic acid have been detected in the urine after having been introduced into the system.

While it would be very interesting for the physician to examine the urine for these substances, it is to be regretted that the process of analysis is not always simple.

Poisonous substances have been detected in the urine, and may be of importance in the treatment of the individual, or in legal medicine.

The presence of albumen, oxalate of lime, sugar, blood, bile, fats, and abnormal pigments are generally considered as indicating disease. I shall speak of these hereafter, and point out the exceptional conditions in which some of these substances may appear in the urine without the existence of any morbid condition of the system.

CHANGES IN THE URINE DURING DECOMPOSITION.

The urine, like any other animal fluid after its discharge from the system, and when exposed at an ordinary temperature, is decomposed, and this decomposition is characterized by certain changes which take place in a regular order of succession. I have already intimated that mucus plays an important part in the decomposition of urine. Physiology has taught us that organic substances, when beginning to putrefy, induce in certain other substances all the phenomena of fermentation. The mucus in the urine being an organic substance, soon becomes changed, particularly when exposed to a temperature between

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* Leçons de Physiologie Experimentale, 1856, p. 111.

60° and 100° F., and communicates these changes more or less rapidly to the supernatant fluid. This first change is called *acid fermentation,* and produces a free acid, usually *lactic acid,* from some of the undetermined animal matters contained in the urine. This fermentation takes place very early, within the first twelve, twenty-four, or forty-eight hours, according to the elevation of the surrounding temperature. Perfectly fresh urine, as has been stated before, contains no *free acid.* Lactic acid, nevertheless, has been so frequently found in nearly fresh urine as to lead some eminent chemists (Berzelius and Lehman) to regard it as a natural constituent of the excretion. It has been subsequently found, however, that urine, though entirely free from lactic acid when first passed, may frequently present traces of this substance after some hours' exposure to the air. The lactic acid is undoubtedly formed, in these cases, by the decomposition of some animal substance contained in the urine. Its production in this way, though not constant, is sufficiently frequent to be regarded as a normal process.

It is, in consequence of this change, or the presence of this acid [lactic acid $C^8\ H^6\ O^3$ ($C^6\ H^6\ O^6$)], that the urates are partially decomposed, and the deposit of crystalline uric acid takes place in the same manner, as if a little nitric or muriatic acid had been added to the urine. Urine, therefore, if abounding in the urates, frequently shows a deposit of uric acid a few hours after it has been passed, though it may have been perfectly free from deposit at the time of its emission.

During the period of *acid fermentation,* Dalton believes that *oxalic acid* [$C^8\ H^4\ N^2\ O^4$ ($C^6\ H^4\ N^2\ O^6$)] is also sometimes produced in a similar manner with the lactic acid, and that the presence of *oxalate of lime* in urine, after a day or two of exposure to the atmosphere, is not at all a dangerous or morbid symptom; "for whenever," he goes on to say, "*oxalic acid* is formed in the urine, it must be necessarily deposited under the form of *oxalate of lime,* since this salt is entirely insoluble both in water and in urine, even when heated to the boiling point." It is difficult to comprehend how the deposit of oxalate of lime in the urine was held previously in solution. The explanation of Dalton is, "that its oxalic acid is, in all probability, formed, as stated above, in the urine itself, and that it unites as fast as it is produced with the lime previously in solution, and thus appearing as a crystalline deposit of oxalate of lime." It is much more probable that this is the true explanation, since, in the cases to which Dalton alludes, the crystals of oxalate of lime grew, as it were, in the cloud of mucus which collects at the bottom of the vessel, while the supernatant fluid remains clear.

The crystals of oxalate of lime are of minute size, and appear under the microscope in well-defined octahedra of various sizes, and dumb-bell-like bodies (the latter are not frequent), double quadrangular pyramids, united base to base, and prismatic crystals, are all occasionally observed.

Considerable difference of opinion is evinced as to the production of oxalic acid and to what extent a deposit of oxalate of lime in urine is consistent or inconsistent with the health of the individual. There can be no doubt that oxalic acid is also found in the system, since it has been found in the blood; its true source is not known.

I take the following view: If oxalate of lime is found immediately after urine has been voided, it is either the result of fermentive action in the urinary passages, or the formation of oxalic acid in the system; the history of the case will generally guide us in our opinion.

The oxalate of lime found in urine after a day or two of its exposure to the atmosphere is (I adhere to Dalton) the result of acid fermentation. Of the pathology, etc., of oxalate of lime, I shall speak more fully in a subsequent paper.

At the end of some days the changes above described come to an end, and are succeeded by the process known as "alkaline fermentation." This is nothing more nor less than the decomposition or transformation of the urea into carbonate of ammonia. As the alteration of the mucus advances, it loses the power of producing lactic and oxalic acid, and becomes a

Uro-microscopy, after Dr O. Funke,

Fig. 1.

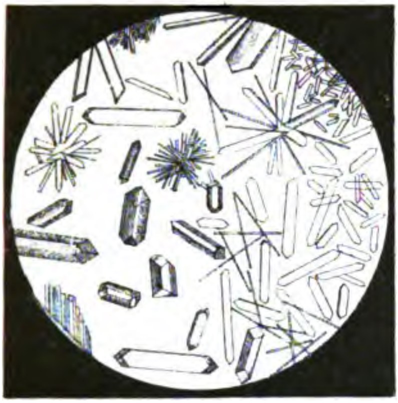

Fig. 2.

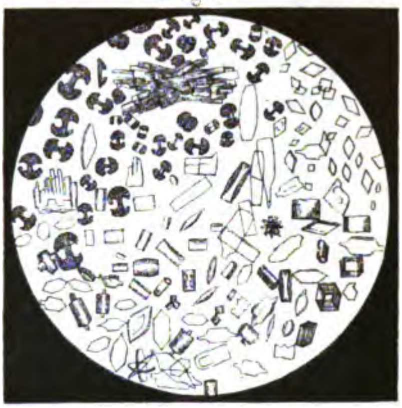

Fig. 3.

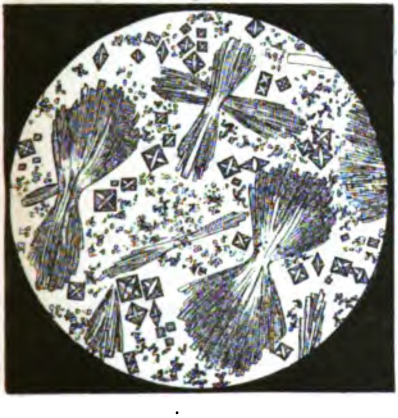

Fig. 4.

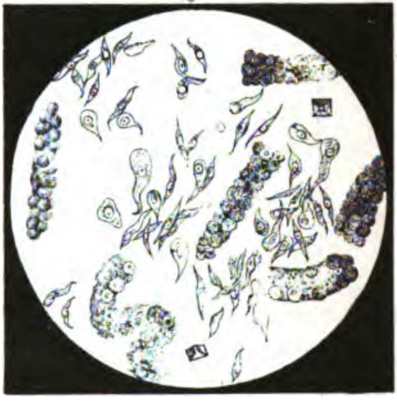

Fig. 5.

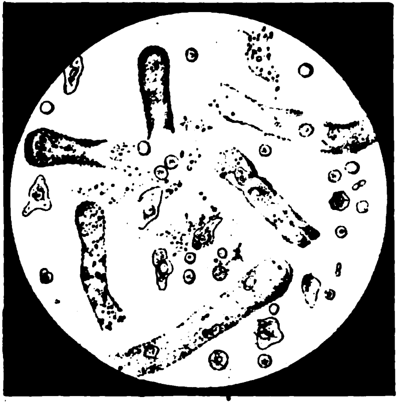

Fig. 6.

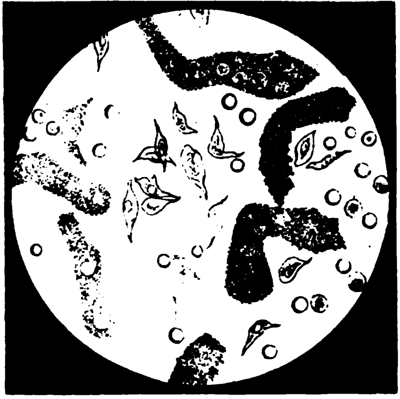

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PLATE 2.

Uro-microscopy, after Dr O. Funke,

Fig. 1.

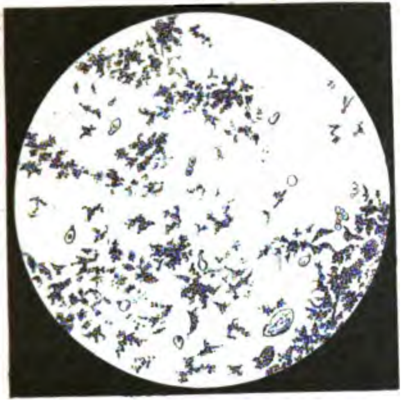


Fig. 2.

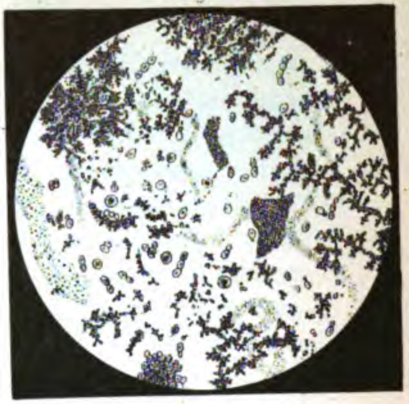


Fig. 3.

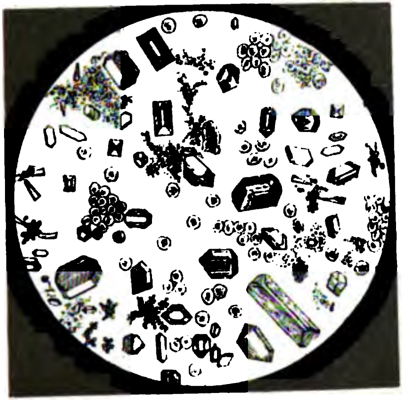


Fig. 4.

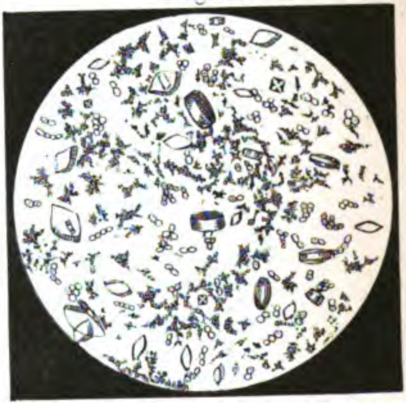


Fig. 5.

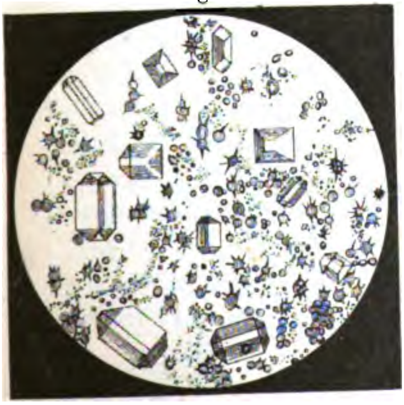
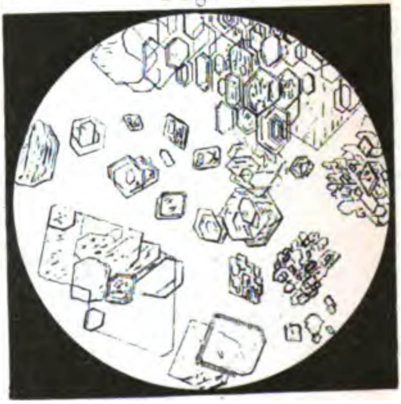


Fig. 6.



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ferment, capable of acting by catalysis upon the urea, and exciting its decomposition as above. It has been already mentioned that urea may be converted into carbonate of ammonia by prolonged boiling, or by contact with decomposing animal substances. In this conversion, the urea unites with the elements of two equivalents of water, and consequently it is not susceptible of the transformation when in a dry state, but only when in solution or supplied with a sufficient quantity of moisture. The presence of mucus, in a state of incipient decomposition, is also necessary to act the part of a catalytic body. Consequently, if the urine, when first discharged, be passed through a succession of close filters so as to separate its mucus, it may be afterwards kept for an indefinite time without alteration. But under ordinary circumstances the mucus, as soon as its putrefaction has commenced, excites the decomposition of the urea, and carbonate of ammonia begins to be developed.

According to von Tieghen, the alkaline fermentation is not dependent upon the mucus, but a peculiar torula, which is found in every urine. [See Vogel's Anbeitung, p. 130.]

The first portions of the ammonia will begin to neutralize the biphosphate of soda; the acid reäction of the fluid diminishes in consequence of this change, and the production of carbonate of ammonia still going on will soon render the fluid neutral and alkaline. It will be seen that these changes are dependent upon the presence of mucus, or, if you please, *torulæ*, since, if they are present, they are intimately mixed with the mucus, and it has been found that they increase in quantity, in the same affections, in which mucus increases; an increased quantity of either the mucus or torulæ, therefore, in combination with a high temperature will greatly influence the rapidity of the decomposition. Urine of a neutral or slightly acid reäction, when passed, will, of course, become sooner alkaline than that of intense acidity.

The fermentive process may be going on in the bladder, thus we have alkalinity of urine, due to the decomposition of urea into carbonate of ammonia, in paralysis of the bladder, simply from the fact that the fluid is retained for many hours, and that there is nothing to antagonize the changes; on the contrary, many circumstances will favor this process—such as a high temperature, a large amount of mucus, etc.

The first effect of the alkaline condition of the urine thus produced, is the precipitation of the earthy phosphates. These salts, as I hinted in the course of their description, are held in solution by the acid biphosphate of soda, and are totally insoluble in neutral and alkaline urine. The precipitate begins to fall as soon as the natural acidity of the urine has fairly disappeared, and settles upon the sides and bottom of the vessel, or is partly entangled with certain animal matters which rise to the surface and form a thin, opaline scum upon the urine. There are no crystals to be seen at this time, and the deposit is entirely amorphous and granular in character. The next change consists in the production of two new double salts by the action of carbonate of ammonia on the phosphate of soda and magnesia. One of these is the "triple phosphate," phosphate of magnesia, and ammonia—($2\,M_g\,O\,N\,H^4\,O\,P\,O^5 + 2\,H\,O$). The other is the phosphate of soda and ammonia—($N_a\,O\,N\,H^4\,O\,H\,O\,P\,O^5 + {}^8H\,O$). The phosphate of magnesia and ammonia is formed from the phosphate of magnesia in the urine by the replacement of one equivalent of magnesia by one of ammonia; the crystals of this salt are very elegant and characteristic. They show themselves throughout all parts of the mixture, growing gradually in the mucus at the bottom, adhering to the sides of the glass, and scattered abundantly over the film which collects upon the surface. By their refractive power, they give to this film a peculiar glistening and iridescent appearance, which is nearly always visible at the end of six or seven days. The crystals are perfectly colorless and transparent, and have the form of triangular prisms, generally with beveled extremities, or resemble feather-down. Frequently, also, their edges and angles are replaced by secondary facets. They are soluble in acids, but never in alkalies. [See plate 2, fig. 3 and 5.]

The phosphate of soda and ammonia is formed by the union of ammonia and the phosphate of soda, which latter is one of the normal constituents of urine. Its crystals resemble very much those of the *triple phosphates*, except that their prisms are of a quadrangular form, or some figure derived from it. They are intermingled with the preceding in the putrefying urine, and are affected in the same way by chemical reägents.

The carbonate of ammonia, after converting all the other ingredients with which it is capable of entering into combination, is now given off in a free form. The urine acquires at this time a strong ammoniacal smell, and a piece of moistened test-paper held a little above its surface will have its color immediately turned by the alkaline gas escaping from the fluid. This is the source of the ammoniacal vapor which is so freely given off from stables and from dung-heaps, or wherever urine is allowed to remain and decompose. This process continues until all the urea has been consumed, and until the products of its decomposition have either united with other substances, or have finally escaped in a gaseous form.

ABNORMAL URINE AND ITS DIAGNOSTIC VALUE.

I shall now consider the character of urine which has been changed during disease in quantity or quality, together with the pathological indications of these changes.

Some physicians shrug their shoulders, and to use the language of Bedford, are disposed to smile with something less than contempt, when they hear of the importance attributed to urine in diagnosis; but no independent and progressive mind will ever heed these insinuations. The educated physician can no longer scorn the idea of "urinary diagnosis," provided the examinations are conducted scientifically and with the intention on the part of the physician to study the character of disease and alleviate the suffering of mankind. The enlightened laity, when they know his motives and see that these examinations are valuable aids in diagnosis, and that they are conducted without ostentation on the part of the physician, will appreciate his skill and regard the subject as a part of the progress of medical science. What more need be said to induce every physician to make, now and then, an examination of the urine of his patients, than to assure him that a study of the changes which take place in this excretion, during disease, will guide him in his diagnosis, prognosis, and treatment?

In examining urine, the physician should always first look and test for what he expects to find. In obscure cases of diagnosis, he ought carefully to consider and weigh all the striking points, and from repeated examinations he will arrive at a conclusion dictated to him by the language of nature; for she speaks to him not only through the symptoms in general, but also through the character of the excreta, particularly of the urine. I may add that nature never deceives, but the observer may deceive himself. Before proceeding to discuss in detail urine in its abnormal conditions, it will not be amiss to acquaint the student with some of the principal requisites for its examination.

He should have at hand accurate test solutions, the strength of each of which is exactly known; be provided with graduated pipettes for sucking up and measuring the fluid to be examined prior to its transfer to a convenient vessel; and with graduated glass instruments, or burettes, from which exact quantities of the test solutions may be dropped. Graduated flasks, also, for the preparation of the solutions for the reägents are very useful, and beaker glasses to hold the urine. A microscope is the most essential instrument in urinary diagnosis. He must also bear in mind that in the quantitative analysis, it is customary to use the French system of measures, and to employ instruments on which cubic centimetres are marked. One thousand cubic centimetres are equal to one litre, or 61.028 English cubic inches, or to a thousand grammes of water; and one gramme is equal to 15.434 troy grains. [Da Costa.]

In examining urine, the following are the details of the facts to be determined and recorded:

I.—Record the age and weight of the patient.

II.—Collect all the urine passed in twenty-four hours, measure it in cubic centimetres, and record its absolute amount.

III.—Observe and record the following general properties—viz.: 1. Specific gravity; 2. Urohæmatine, as determined by Vogel's color table; 3. Clearness or turbidity on emission or after rest; 4. Determine the absolute weight, by multiplying the quantity passed, expressed in c. c., by the figures expressing the specific gravity; the result is the weight in grammes.

IV.—Set aside the following quantities of the urine for the volumetric determination of—

1. Urea, 40 c.c.
2. Uric acid, 300 to 500 c.c.
3. Phosphoric acid, 40 c.c. [The precipitate from the urea estimation is sufficient.]
4. Chloride of sodium, 40 c.c.
5. Sulphuric acid, 100 c.c.
6. Degree of free acidity.
7. Sugar, 20 c.c.
8. Albumen.
9. Solids, 20 grammes.

V.—Collect and examine the sediment.

VI.—Determine the amount of the excretion normal to the individual by the following empirical formula (Parke's): Multiply the following figures by the weight of the person in pounds, avoirdupois; the result is the excretion in grains in twenty-four hours of the several ingredients of the urine:

	In men between 20 and 40.	In women bet. 20 and 40.	In children between		In young men & women bet. 16 and 20.
			3 and 8.	8 and 16.	
Urea,	3.53	2.96	6.83	5.20	4.39
Chlorine,	0.875	0.817	1.44	1.097	0.926
Sulphuric acid,	0.214	0.25	0.414	0.315	0.266
Phosphoric acid,	0.336	0.336	0.65	0.495	0.418

The following corrections are required: 1. If the person be between forty and fifty, calculate according to columns 1 or 2, and then deduct 10 per cent.; for ages between fifty and sixty, deduct 20 per cent.; for ages between sixty and seventy, deduct 30 per cent.; for ages upward of seventy, deduct 50 per cent. 2. If the person has been starving for two or three days (as in some fevers), deduct one-third from the calculation made according to the table; if the diet be meagre, deduct one-eighth or one-sixth; if pretty plentiful, yet still below that of health, deduct one-tenth. 3. If there be a total inactivity, deduct one-tenth; if there be merely quietude, deduct one-twentieth. [Aitken's Practice, vol. ii., p. 899.]

COLOR OF URINE.

I shall first speak of the color of urine, for even the laity are apt to draw conclusions from this physical sign. Much information may be obtained from a thorough examination. The normal color of urine, which varies from an amber color to a yellowish-red, depends upon the pigment known as Heller's Urophæin [Urohæmatin], or Thudichum's Urochrome, etc. It is to be remembered that articles of diet, drinks, and medicine will greatly affect the normal hue. Strong coffee darkens the urine; a greenish-yellow or brownish tint is observed when rhubarb has been taken; but this hue is also indicative of the presence of bile. Turpentine produces a dark color and imparts the odor of violets to the fluid. Senna produces a yellowish color; indigo, chincaphilia, hæmatoxylon, and beet-root will tint the urine deeply. Tar and creosote, and the external and internal use of carbolic acid render the fluid black, so will disintegrated blood or inhalations of arseniuretted hydrogen. A red color is generally owing to an admixture of blood; a very light color is indicative of an increase of water, found in diabetes, hysteria, and similar nervous affections. A dark urine is found in fever patients; a light-colored fluid is always indicative of the absence of fever.

Now, since the physician is aware of the many causes which may be productive of changing the color of this excretion, he will know the necessity, at the bedside of the patient, of reasoning, by way of exclusion.

If we can not account for the abnormal color by articles of diet or medicine introduced into the system, we must endeavor to determine its cause. The change may depend upon the coloring pigment *urophæin* (urohæmatin). This substance contains iron, and resembles closely the pigment of the blood. Indeed, it is believed by many physiologists to be the product of retrograde metamorphosis of the red blood corpuscles. Many reasons would seem to point to the correctness of this theory. The blood corpuscles certainly undergo changes like all organic substances, and no other excreted material corresponds so well to the product of the changed red blood corpuscles, particularly their hæmatine, than the urophæin in the urine and the biliverdine in the bile.

The increase of this pigment in all acute febrile affections, but more especially in typhus fever and other diseases dependent upon a morbid condition of the blood, such as is associated with septic poisons, would give support to this theory. Should it become an established fact, the physician will have every reason to place importance upon this particular pigment in his diagnosis and prognosis.

Urophæin is detected in the urine by adding to a specimen double the quantity of sulphuric acid; the result is a brown color, if the mixture become dark, the quantity of urophæin is shown to be increased, which is the case in diseases of the liver, as well as in the affections already indicated.

For the purpose of estimating with accuracy the quantity of this pigment, Vogel has proposed a method of comparing the hue of the urine with a table of fixed colors, which serve as starting points, and each shade of which represents a definite proportion of the pigment. Urine to be thus compared, must be clear (if not so, it is to be filtered) and should be put in a glass beaker of four or five inches diameter. It is to be remembered that all specimens of urine in which the color has been changed by bile pigment, articles of food and medicine, must be excluded from this examination.

The shades of urine have been arranged under three groups, as follows:

I.—*Yellowish Urines:*

1. Pale yellow, like a weak solution of gamboge.
2. Bright yellow, like a medium solution of gamboge.
3. Yellow, like a strong solution of gamboge.

II.—*Reddish Urines:*

1. Reddish yellow, like gamboge with a little carmine.
2. Yellowish red, like gamboge with more carmine.
3. Red, like carmine with a little gamboge

III.—*Brownish Urines:*

1. Brownish red, red with an admixture of a little brown.
2. Reddish brown, more of the brown than in the last.
3. Brownish black, almost black with a touch of the reddish-brown.

The following table, prepared by Vogel, gives an estimate of the quantity of pigment contained in a certain amount of urine of a fixed shade, and also indicates the relative amount of pigment contained in different specimens of urine, of equal quantity, but of various shades.

I*	II	III	IV	V	VI	VII	VIII	IX	*REMARKS.
1	2	4	8	16	32	64	128	256	*I. Pale yellow.
	1	2	4	8	16	32	64	128	II. Bright yellow.
		1	2	4	8	16	32	64	III. Yellow.
			1	2	4	8	16	32	IV. Reddish yellow.
				1	2	4	8	16	V. Yellowish red
					1	2	4	8	VI. Red.
						1	2	4	VII. Brownish red.
							1	2	VIII. Reddish brown.
								1	IX. Brownish black.

For the purpose of making these approximative comparisons, Vogel has fixed the quantity of coloring matter contained in 1000 c. c. of pale yellow urine at one.

Example.—If a certain quantity of pale yellow urine (as compared with the color table), say 1000 c. c., contains one part of coloring matter, the same amount of yellowish red will contain 16 parts, and of brownish black 256 parts. One volume of yellow urine contains as much pigment as four volumes of pale yellow urine. One volume of red urine contains as much as four volumes of reddish yellow, or 52 volumes of pale yellow urine. If one individual discharges 1000 c. c. of yellow urine in 24 hours, another during the same length of time 4000 c. c. of a pale yellow color, both will have eliminated the same amount of coloring pigment. The following may serve as an example to determine the proportion of coloring matter contained in 1800 c. c. of urine of a "yellow" color.

1000 c. c. of *pale yellow urine* equals one part of pigment. *Yellow urine,* however, contains, according to the above table, *four times more* pigment, we receive, therefore the following proportion:

1000:4 = 1800:x = 7, 2; is the total amount of pigment contained in 1800 c. c. of yellow urine, provided the amount in 1000 c. c. of pale yellow urine is fixed at 1.

The other coloring matter named by Heller "*uroxanthine*" or "*indican*" by Schunk, is decomposable by strong acids and heat, into a red pigment "*urrhodine*" and a blue pigment "*uroglaucine*" the former identical with indigo-red, the latter with indigo-blue. Uroxanthine is detected by mixing thirty drops of urine with five or six times as much of strong hydro-chloric or nitric acid; the fluid after agitation becomes red or faintly violet; if the fluid contains more than a very small amount of this pigment, the mixture becomes decidedly violet or blue from the development of the indigo. Exposure to air also evolves this pigment; its composition is very similar to that of hæmatin and the coloring matter of the bile. It is found in small quantities in normal urine, and increases in the febrile affections, in all concentrated urines, in diseases of the nervous system, kidneys and serous membranes, in cholera, etc. The urine of persons afflicted with melanotic cancer, whether seated in the urinary passages or elsewhere, becomes on exposure to the air gradually brown or even black (like porter); this change may be hastened by the addition of nitric or chromic acid; the color is evidently due to the melanine in the pigment cancer, and may be regarded as diagnostic of that affection. [For particulars see Eiselt in "Prager Vierteligahrschrift" 1858, p. 190, and Priban in the same journal, 1865, p. 16.]

The pink color of urine is in most cases attributable to the coloring matter "uroërythrin." Golding Bird has described a similar pigment as "*purpurine*"; it is this substance which imparts to the deposit of urates or uric acid the brick-red or pink color. In febrile and liver affections, in acute rheumatism and gout, the quantity of uroërythrin is increased, and gives the urine a reddish hue. A solution of acetate of lead produces a pinkish precipitate, which is its test.

Thudichum supposes this pigment to be a product of oxidated *urochrome,* which latter he believes to be the normal coloring pigment of the urine, and that Harley's *urohæmatin,* Heller's *urrhodin,* and Schunk's *indigo-rubia,* are nothing more than products of decomposed urochrome. Thudichum says "urochrome yields by chemalysis various remarkable products of decomposition—viz., *uromelanine, uropittine,* and *omicholine.* Schunk states that the color of the urine is not dependent upon only one pigment, and since new coloring matters will form, by spontaneous decomposition of either the original coloring principle cr some other substance contained in the fluid, it is not at all surprising that those pigments are increasing both in name and number. The same observer, as already mentioned, has proven that the *uroxanthine* of Heller, and the product of its decomposition, *uroglaucine* and *uropodine,* are identical with the substance named by him *indican* and its product of oxidation, *indigo-blue* and *indigo-red*; and when it is considered that Thudichum's *urochrome* is the source from which many of the above-named coloring matters are derived, the study of these pigments is much simplified. I shall now consider the tests for *indican* (uroxanthine) and *urochrome.*

Indican itself does not impart any color to the urine, but by its decomposition, to which it is very prone (as observed above), it yields indigo-blue, indigo-red, and glucose. Schunk finds it in normal urine, and Carter has proposed the following test: (Da Costa, 3d edit., p. 592). Into a test tube pour urine to the depth of half an inch; add one-third of its volume of commercial sulphuric acid of the specific gravity 1830, by allowing it to trickle down the side of the tube, so as to form the lower stratum. The fluids should then be intimately mixed by agitating them together. There is produced, according to the amount of indican present, a color varying from the faintest tinge of pink or lilac, to the deepest indigo blue. Unless due regard be paid to these minutiæ, the reäctions mentioned will not be observed. A tolerably correct estimate of the share taken by the different coloring matters in the production of a given tint may be made by neutralizing the sulphuric acid,' added as above, with caustic ammonia, then agitating the mixture with one-third of its volume of *ether* and allowing it to remain at rest for a few minutes. The ether rises to the surface, holding the indigo-red in solution, and the blue in suspension (if any have been generated), leaving the ordinary urine pigment dissolved in the aqueous fluid below. The following is a test recommended by Thudicum for the detection of *urochrome.*

1. Fresh urine is treated with excess of milk of lime or baryta, allowed to stand, and filtered. To the filtrate, lead acetate with a little ammonia is added till colorless, and the precipitate well washed and digested with cold dilute sulphuric acid, till a filtered sample shows an excess of sulphuric acid when tested with barium chloride, and hydrochloric acid. At this point filter the whole, shake the filtrate with barium carbonate to remove the sulphuric acid, add a little baryta water, pass carbonic acid through the liquid, and filter again. Precipitate the solution with mercuric acetate, wash the precipitate of urochrome mercury very thoroughly with cold and hot water, decompose it by sulphuretted hydrogen, filter, shake the filtrate with a little fresh silver oxide to remove hydrochloric or kryptophanic acid, filter; again decompose by sulphuretted hydrogen, and evaporate the filtrate to dryness in vacuo over sulphuric acid. A yellow uncrystallizable mass of *urochrome* remains.

2. Urochrome is easily soluble in water with a yellow color, very little soluble in alcohol, soluble in ether, and can thereby be separated from kryptophanic acid, which is insoluble in ether.

3. To the solution in water add lead or mercuric acetate; a flaky yellowish precipitate will fall.

4. Add silver nitrate; a gelatinous precipitate soluble in nitric acid will form.

5. Add mercuric nitrate; a white precipitate, pale, flesh colored on boiling will be produced.

6. The aqueous solution on standing becomes red and deposits resinous flakes, containing uromelanine, uropittine, omicholine, and omicholic acid (q. v). This decomposition is hastened by boiling and by acids.

7. Treat acidified extract of urine by ether, and distill the latter. Precipitate the residue by basic lead acetate, decompose by hydrothion, and treat urochrome as above.

8. Separate kryptophanic acid by dissolving its lead salt in excess of lead acetate, in which urochrome lead is insoluble.

The colors produced by an admixture of bile or blood will be considered under separate heads in subsequent papers.

ART. II.— ON THE VALUE OF TRANSFUSION OF BLOOD. By FREDERIC D. LENTE, M. D., Gold Spring, New York.

In this paper it is my purpose mainly to review the remarks of Dr. Fordyce Barker, made at a meeting of the New York Academy of Medicine in January last, and reported, with the discussion thereon, in the "Medical Record" of April 1, but also to refer to the *relative* value of other methods for saving life when rapidly ebbing from exhaustion produced by hæmorrhage, shock, etc.

From the time when Sir Christopher Wren and Dr. Lower commenced their experiments, more than two hundred years ago, to the present time, the subject has attracted but a moderate share of attention from the Profession until quite recently; and although a variety of ingenious instruments have been contrived, from time to time, and the operation somewhat simplified, and some brilliant results obtained, the process has never become at all popularized in the Profession, and success certainly, so far as modern operators are concerned, has not been commensurate with the expectations of its projectors and cultivators.*

Dr. Barker relates a successful case occurring in 1666. A large number, about seventy, successful cases have been reported from that time to the present, to which the Doctor alludes, but a much larger number of unsuccessful cases. Now, if we analyze the *successful* cases, as Dr. Barker presents them, we find, in the first place, with a larger experience in the operation, and with better apparatus, it has been, if anything, less successful latterly than formerly; that, in the unsuccessful cases, especially those performed in this city, it has been performed by, or under the direction of, our most eminent men, as Thomas, Van Buren, Flint, Jr. Dr. Braxton Hicks performed it in Guy's Hospital six times, all unsuccessful. Six cases in New York City, all unsuccessful. Nor will it avail to say that the fatal result was attributable, in those cases, to *thrombosis;* as, with such operators, due care would be taken to prevent this; and, moreover, in almost every case an improvement, lasting some hours, followed. Again, it will be noted that in almost all the successful cases, when the cause of exhaustion is mentioned, it is *post partum* hæmorrhage, or that following abortion, as Belina's seven successful cases, and ten of Dr. Higginson's successful cases. Now, all who have had a large obstetric experience are aware of what incredible quantities of blood a woman may, with impunity, lose under these circumstances, and must also have noted the extraordinarily rapid convalescence after these losses, provided full nutrition is maintained. I have seen these patients again and again lying pulseless, exsanguined, blind, respiration irregular and sighing, vomiting the anodynes and stimulants vainly given, and yet I never had the ill fortune to see one die, though we did not then possess the means which we now do for averting a fatal result; as, for example, hypodermic injection.

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* Dr. Jos. W. Howe informs us that transfusion "was brought fully into public notice during the latter part of the fifteenth century by the physician of Pope Innocence VIII., who sacrificed three young boys in performing the operation on his master. The transfusion was made with instruments resembling those used at the present day."

Then, if we examine Deny's two cases, occurring in 1666, so successful that all France was crazy on the subject, and so many fatal results occurred from the operation, as we are informed by Dr. Barker, that it was interdicted by law. I say, if we examine his cases, we will see that, desperate as they undoubtedly appear to have been, they are just such cases as might have been relieved by other methods, which will presently be alluded to.

But I will first relate a case in point. Six years ago I was summoned to see a lady of wealth and refinement, young and beautiful, married a few years, but separated from her husband at the time from some domestic discord. Not appreciating the urgency of the call, I delayed perhaps half an hour; and on my way met a messenger on horseback, who said the lady was dying or dead. On reaching the room, I found the patient lying across the foot of the bed, where she had fallen, in a state of profound syncope, on endeavoring to get into bed. Her complexion, usually very brilliant, was blanched; she was completely unconscious, and her pulse at the wrist gone. She had had repeated attacks of menorrhagia, and had ceased to dread them, and so, this time, had allowed herself to go on, day after day, losing blood, until a sudden profuse gush induced the alarming condition in which I found her. I immediately tamponed the vagina to prevent further loss, ordered enemata of brandy and Liebig's extract of beef, and sent a messenger for my friend, the late Professor Elliot, who happened in the neighborhood. She was, after great exertion, slightly rallied; but we both wished for some reliable means of transfusion, but being several miles in the country, we had none. However, we sent a telegram to Professor Flint, Jr., who had just imported an excellent French instrument. Dr. Flint remained with us all night, but the occasion for resorting to the operation did not occur. For twenty-four hours, however, it was unsafe to change her position across the bed, and her recovery was exceedingly protracted. But she did ultimately entirely recover.

Again, in many of the cases reported as successful, only a few ounces of blood (in some instances two or three) were used; whereas, in some of the unsuccessful cases, a considerable quantity, thirteen to sixteen ounces, in one case nineteen, were injected, but introduced slowly and with sufficient care, each fresh application producing temporary amendment. Now, as Austin Flint, Jr., remarks: "Normally, the patient should have from fourteen to eighteen *pounds* of blood *circulating* in the system to properly *sustain* (the italics are mine) the functions of the body." Is it, therefore, reasonable to suppose that from two to eight ounces, the amount usually employed in transfusion, should do more than *temporarily* excite the action of the heart? In his remarks before the Academy, on Dr. Barker's essay, he asks the question: "What seems to be the mechanism of the influence by which comparatively small quantities of blood, introduced into the circulation of a person dying either from hæmorrhage or from exhausting disease, produces such restorative results?" But he is not reported as having answered the query.

From the results of injections of *solutions of salts* in cholera and other diseases attended by exhausting discharges, which were, at one time, largely and enthusiastically employed, it would seem as if the modus operandi is mechanical, as a general rule; giving to the heart and large vessels more to take hold of and to act on, and thus stimulating them. Wonderful, though temporary results have followed these injections, more so, as a general rule, than from the use of blood, apparently because of *the larger quantity*. In this connection, I refer to a most remarkable paper in the "London Practitioner" for January, 1873, on the injection of *pure milk* into the veins, by Dr. Edward M. Hodder, of Toronto. Basing his action on a knowledge of the experiments of Donné, and on the opinions of Wagner, Gulliver, and others, that the corpuscles of milk are capable of alteration into blood corpuscles, he injected fourteen and twenty-eight ounces of milk, in a few hours, into the veins of two patients *moribund* from cholera, with immediate relief and subsequent cure. In a third case, the first injection of fourteen ounces produced great relief, but a relapse occurring during his absence, he lost his case, as he thinks, from the want of a second injection.

Dr. Anstie adds a *note* in which he says: "We scarcely know whether it is necessary to add, even for the information of English readers, that Dr. Hodder is a very distinguished and experienced practitioner, so that his evidence is most valuable and trustworthy."

I will only add, in this connection, that, so far as our past experience extends, it appears that, to be really successful in any considerable number of cases, and where success would not be attained by the *vis vitæ*, or through more acceptable measures, the experiments need to be carried further, and the injections repeated in regular doses, as the effect of the preceding is seen to be passing off, just as we would use any other remedy. But, here the difficulty presents itself, the want of *material;* and, on this account, if on no other, the experiments of Dr. Hodder deserve a further trial.

As regards the use of transfusion of blood in blood-poisoning, alluded to by Dr. Lusk in the discussion, further experiments are also needed to determine whether here the results may not be more permanent, as they have been in one or two cases.

In making the above comments on this discussion, and on Dr. Barker's remarks, it is far from my intention to depreciate any of the wonderful triumphs of modern medicine in the alleviation of pain and the saving of life; no one glories more in them. And transfusion may be ranked among the great triumphs, if it has rescued one life otherwise irrecoverable, and it has, without question, rescued many. But the treatment will be more successful if it is placed on its proper basis, limited to its appropriate applications, and assisted by auxiliary measures, to which I shall presently allude. Two or three brief cases, in addition to the one already adduced, will illustrate the results of the treatment by which we may supplement or assist the operation of transfusion of blood.

CASE I.—L. S., a man 46 years of age, exhausted by long continued strumous suppuration of the ankle joint, and tottering on the verge of the grave, came under my notice in this condition, and amputation of the leg was advised as a "forlorn hope." It was done with the aid of my regular assistant, Dr. Bluxome, now of San Francisco, and the late Frederick G. Le Roy, M. D., of Tarrytown. He lost a great deal of venous blood, and he was pulseless and *in articulo mortis* for some time. Injections of brandy with beef-tea *per rectum* were regularly given him by Dr. B. and myself, and it was only by constant personal attendance, for forty-eight hours, on our part, that he rallied. He is now quite well.

CASE II.—B. S., a girl sixteen years old, lost all the integument from arm and forearm from a kerosene burn. Profuse hæmorrhagic granulations formed, after a time, over these parts; and, for months, she continued in this state, suffering agony at each dressing, and often requiring anæsthesia to enable her to bear the dressing, but still refusing amputation. Finally, worn out by suffering, she consented, and I removed the arm at the shoulder-joint, with the aid of my regular assistant, Dr. Richardson, and John F. Hammond, M. D., U. S. Army. The arteries were of course much enlarged by long continued inflammation and exuberant growths, and also a much larger number of smaller vessels than usual required ligature. Added to this, the pressure on the subclavian seemed to exert little or no control over the circulation; so with scant assistance, and under such circumstances, a large amount of blood was necessarily lost, and the girl was completely exhausted, insensible, and pulseless. The same routine of treatment as in the last case, continued for several days, resulted in rescuing the patient, and she is now able to support herself. My colleague at the Hudson-River State Hospital, Dr. Kellogg, related a similar case to me to-day, of which he had charge at the Utica Asylum. A patient, in the sitting posture, opened the veins at the elbows of both sides, and lost an enormous amount of blood; she was insensible and pulseless. Dr. Cleaveland and he worked diligently for twenty-four hours, with ordinary remedies, elevation of the foot of the bed, warmth to surface, stimulants by mouth and rectum, bandaging the extremities, etc., and the patient survived. I will only tax your patience with the brief history of one more case of this kind, which occurred quite recently, though I might go on multiplying them almost indefinitely.

A fortnight ago, while attending a case in Newburgh, in consultation, it happened that my friend, Dr. S. Ely, of that city, was in the midst of a most serious operation, and hearing of my propinquity, kindly sent for me. The case was a recurrent fibroid tumor of the posterior aspect of thigh, which he had twice before extirpated. The condition of the patient, a female, was very feeble when he commenced. She refused to entertain the idea of amputation. He prepared the limb after the manner of Esmarch, and with perfect success. For, during the extirpation, although as it appeared, on subsequent dissection of the limb, all the large vessels, including the femoral, were divided, there was absolutely no hæmorrhage. My advent on the scene was just after the constricting cord had been removed, and a furious gush of arterial blood from numerous vessels, much enlarged, warned the Doctor to reäpply the rubber cord. Amputation was now the only hope, and a forlorn one. The pulse was flickering at the wrist, and very slow and compressible at Poupart's ligament. At the request of Dr. Ely I compressed the artery at this point; and he rapidly removed the limb at its upper third by the circular method. Just previous to this, however, I suggested the precaution of injecting a stimulant *per rectum*, as she was insensible from exhaustion and the anæsthetic, and Dr. Ely injected half a tumblerful of undiluted brandy. Notwithstanding the compressibility of the artery and my care in keeping up a steady pressure, for some reason, blood poured out freely from numerous vessels, and although they were secured with great skill and celerity, a very considerable loss of blood occurred, and the pulse became quite imperceptible. Within half an hour a tumblerful and a half of brandy undiluted was given by the rectum and retained. She was pulseless at the wrist for half an hour, and considered quite hopeless by more than one of the physicians present. I remarked to Dr. Ely, "here is a case for transfusion." She was put to bed, covered warmly, had bottles and jugs of hot water placed about her body and extremities. I saw the patient two days afterwards, and she was slowly rallying. Within the last few days I received a letter from Dr. Ely, in which he says: "She has been steadily improving in strength, the pulse at first imperceptible, gaining in force and frequency. Stump doing well. I think, therefore, that a favorable prognosis may be entertained." In this case the feeble cardiac action was due partly to shock, partly to hæmorrhage, as is commonly the case in surgical operations.

There are certain cases undoubtedly, though exceptional, in which nothing short of transfusion, and the transfusion of blood alone will meet the indications presented. Such a case as this, which I saw several years ago in consultation with two surgeons of the army. A lady, the wife of an officer had been delivered of twins, had lost a large amount of blood *post partum*, and had continued to lose blood for three weeks, up to the date of my visit. She was blanched to the last degree; her appearance was indeed striking—more ghost-like than anything I had ever witnessed. The hæmorrhage had ceased just previous to my visit, and did not recur. But, although she took a large quantity of the most nutritious food and stimulants, she pined slowly away and died. It will always be to me a source of regret that we did not practice transfusion.

Dr. Fryer, of the U. S. Army, in an interesting article in the last number of the "Medical Record," so well describes these cases that I quote his words: "Of the acute cases we refer to, those in which natural nutrition is, for the time, suspended, either from direct lesion of the blood-making system, in one or more of its divisions, or is indirectly affected in consequence of some profound systemic impression; where, if we can bridge over a short period by keeping life's machinery going, we may ultimately bring about a restoration of the healthy nutritive process and thus save life." In most of the cases, however, which he proceeds to particularize, I can not agree that transfusion is necssary, provided we adopt and carry out faithfully and systematically the means here proposed, attending to the details ourselves as strictly as we should in transfusion, or at least superintending them. In some of his gastric cases, for instance, the prohibition of all food by the mouth, for days together, except small and regular doses of lime-water and milk; sometimes even prohibting this, and making the rectum do the duty of the stomach; sometimes the regulated use of *raw* meat; and latterly, and more important than all, the use of *induced electricity* have enabled me to restore the apparently most hopeless of these cases to life and health.

Among the auxiliary measures to be adopted in aid of transfusion, or as a substitute for it, we may enumerate the maintainance of the warmth of the surface, the liberal supply of pure air, the elevation of the foot of the bed, the methodical bandaging (better with Esmarch's rubber bandage) of the extremities, forcing a large amount of blood from the surface to supply the viscera, digitalis to stimulate the heart; but, above all, a firm faith in the efficacy of soluble beef with stimulants per rectum is requisite, or else its employment, with that supervision, precision, and perseverance which are absolutely essential to success, will not likely be carried out. There is a singular distrust in the minds of the laity and of the Profession to a very considerable extent regarding the efficacy of beef-tea, and especially of Liebig's extract and similar preparations. I say singular, because it is so easy to put the matter, and a very important matter it is, to the test. One case, such as I now adduce, ought to be sufficient. One of my own children, when about five years of age, had scarlatina complicated by diphtheria, then articular rheumatism, then a low fever allied to typhus, with a tongue perfectly dry and brown, with complete inability to retain anything solid or fluid on the stomach. Systematic injections, per rectum, of regulated quantities of beef-tea and brandy every two hours, day and night, were resorted to and continued for over two weeks before I could venture to rely on the stomach. There were some anomalies in the case, and uncertainty as to diagnosis, which induced me to seek counsel, and Dr. Alonzo Clark, of New York, kindly saw the case with me.

I will conclude this portion of my paper by a reference to one more case occurring in my practice. A maiden lady of uncertain age, bed-ridden for ten years from the *effects* of chronic dysentery and dyspepsia, became the subject of femoral hernia, which, in time, became strangulated, and could not be reduced by taxis. Operation was strongly urged day after day; but as the symptoms were not felt by herself to be very urgent, it was declined. Finally, in the middle of the sixth night, the situation became so desperate that I was hurriedly summoned to perform the operation. Her almost incessant vomiting and her previous bad health had reduced her to a state of alarming debility. Assisted by my regular aid, Dr. Richardson, her brother, and the apothecary to give the ether, I operated; but owing to the collapse of the brother and the necessity for sending in next door and rousing up another assistant, the operation was protracted, and the quantity of ether used unusually large. This did not have a beneficial effect on the stomach, and it was very evident that we should have to depend on the *rectum*. I enjoined total abstinence from all ingesta by the mouth, and the regular injection of beef-tea and brandy by the rectum.

For eight days this was strictly adherred to, and she improved continuously and rapidly; and when I advised the disuse of the enemata and a return to the ordinary method of feeding, she exclaimed: "Oh! if I could be only fed this way all the time. I feel so much better." For these injections the extract or soluble beef is preferable, since, being more fluid it is more readily absorbed, and its solubility, without sediment, in the smallest quantity of water, renders it possible to give the largest quantity of nutriment in the smallest possible bulk; a matter of no little moment in the case of children and of an irritable rectum.

To show what extraordinary statements are abroad concerning the action of beef-tea, I extract the following from a popular journal in extensive circulation: "The statement of Liebig that the addition of meat extract to vegetable food increases its nutritive value, and that the extractive matter of meat, especially creatine and creatinine is the material for muscular work, has been disproved by Voit and Meissner, and the idea that beef-tea and meat extract are beneficial on account of the salts they contain is an unlikely one, as these salts are already present in excess in ordinary food. The suggestion, however, that they answer the purpose of stimulants, like coffee, tea, and alcohol, seems to be confirmed by experiment. Small doses of meat extract quickened the pulse, but large ones produced paralysis of the heart and death."

Per contra, I may add that, to Professor Schiff we are indebted for the discovery and demonstration of the fact, that broth and beef-tea contain organic materials which need no digestion to aid their absorption, "but that they contain a nutriment already formed, and afford to the blood organic elements which concur in the formation of the active principles of the secretion of the gastric and pancreatic juices."

In cases of extreme exhaustion from vomiting during pregnancy, Dr. Barker recommends transfusion of blood as a substitute for the induction of labor, or when the latter is considered indispensable as a means of restoring sufficient strength to enable the patient to withstand the shock of the operation. In these cases, I have found that the ordinary Faradaic current, passed from over the solar plexus behind, to the epigastrium in front, in some cases better from the *vertebra prominens*, aided by *general* Faradization, after Beard and Rockwell's plan, will generally produce complete relief when it does not depend on the irritation of a diseased cervical canal; in which case the application of nitrate of silver will have as good an effect. I do not give the very interesting cases contained in my note-book and in that of my assistant, Dr. Murdock, in support of my assertion, because they are promised, in another paper, to a medical journal. In cases of very sudden and imminent danger, when time for transfusion of blood even can not be had, it might be well to transfuse brandy directly into the veins, or even ammonia slightly diluted, after the method recommended by Professor Halford, of Australia. His method has been misunderstood frequently, and condemned as producing alarming abscesses by those who have injected the fluid into the *cellular tissue* instead of a *vein*. Both Dr. Murdock and I have used *brandy* undiluted in the cellular tissue, half a drachm every half hour, with no unpleasant effect as regards inflammatory action, and with a happy effect on the circulation.

Since this paper was commenced, the most comprehensive work yet published on the transfusion of blood was placed in my hands by Professor Janeway, to whom I return my thanks. It is entitled "Transfusion des Blutes Eine Historische, Kritische und Physiologische Studie, von Franz Gesellius." St. Petersburg and Leipzig. 1873.

Not being familiar with the German language, I am indebted, for assistance in the translation of such parts as I desire to notice, to a young lady friend, who was remarkably successful, though ignorant, of course, of medical terms. I transcribe some of the tables of Gesellius as translated by her:

Table of Transfusion of Animal Blood into Men.

Quantity of blood taken from the person before transfusion.	Quantity injected—ozs.	Kind of animal's blood.	Manner of transfusion.	Operator.	Result.
No depletion - -	5	Vein blood of ram.	Tube or syringe.	Bliedung, 1839.	Recovery.
? ? - - -	6	Calf's artery blood.	Direct.	Denis u. Emmerez, 1667.	Died, not from transf'n.
Depletion of few drops	8	Carotids of lamb.	"	City Hospital, Wilmington, N. C., 1871.	Recovery.
Three ounces - -	9	Carotid of lamb.	"	Denis u. Emmerez, 1667.	Remained perfectly well.
Seven ounces - -	11	" "	"	Lower u. King, 1667.	Recovery.
? ? - - -	12	" "	"	Denis, 1668.	do.
No depletion - -	14	Defibrinated calf's blood.	Tube.	Esmarch, 1860.	Died.
Thirteen ounces - -	18	Femoral artery of calf.	Direct.	Denis u. Emmerez, 1667.	Perfectly well.
Ten ounces - -	20	Femoral artery of lamb.	"	do.	do.
Depletion of greater part of blood - - -	Equally large quantity transfused.	Carotid artery of lamb.	"	Kaufmann and Purmann, 1668.	Recovery.
? ? - - -	?	" "	"	do.	do.
? ? - - -	?	" "	"	do.	Remained a long time in a state of melancholy.
? ? - - -	?	" "			
			"	Riva, 1667.	Seemed entirely well.
No depletion - -	Few drops.	" "	"	do.	Died, not from transf'n.
? ? - - -	? ?	" "	"	do.	Recovered.
? ? - - -	Much blood as desired.	Carotid artery of ram.	"	Paulus Manfredus, 1668.	Recovered.
Deplet'n almost to bloodlessness - -	? ?	Blood serum of a calf.	Syringe.	Sokolow, in Moscow, 1847.	Recovered.

History of the case operated on by Denis in 1667. The subject had a severe and tedious fever in which the physicians had bled him twenty times. Before his illness his mind and body were in good condition, memory excellent. Afterwards, his mind seemed stupid, memory nearly gone, and he was so dull and sleepy as to be good for nothing. Denis saw him sitting at the breakfast table fast asleep. After sleeping twelve hours, he could easily be induced to go to bed and pass the whole day in this sort of stupor.

Quantity and Nature of Blood.—After depletion of three ounces of thick, black blood, Denis transfused nine ounces of lamb's blood direct from the carotid artery.

Manner of Transfusion.—Direct Uberleitung.

Circumstances after Operation.—Boy appeared exceedingly well. After twelve hours, he lost from three to four drops of blood from the nose; all dullness of mind and body disappeared. He grew visibly fatter, and all who knew him were astonished. Complete recovery.

Instance No. 2: Man, forty-five years of age. Operators, Denis and Emmerez, 1667. A robust porter, perfectly healthy; willing, for money's sake, to suffer transfusion. After depletion of ten ounces, twenty ounces of blood from the femoral artery of a lamb were transfused directly.

After Operation.—Went gaily to an inn to make merry with his comrades over his money. Remained perfectly well, grew stronger than ever, and offered himself willingly for a second experiment. Satisfactory result.

Instance No. 3: Case of Baron Bond, who had been reduced to extreme debility by a complication of diseases. The transfusion was fatal. The full histories of many other cases from the tables are given.

Quantity bl'd injected at each operat'n		Number of cases.	Quantity bl'd altogether.
Ozs.			Ozs.
1	1849 Norman and Ormond, 1852 Luigi Prejalmani, 1863 Braun (Wien)	3	3
2	1828 Klett and Schraegle, 1830 Kilian, 1831 Kilian, 1838 Berg, 1844 Berg, 1863 Greenhaly, 1863 Thorne. 1865 Thomas	8	16
3	1828 Klett, 1831 Kilian, 1851 Marmonnier Sen., 1869 Buchser, 1870 Antonio Cavaleri and Barbieri.	5	15
3½	1820 Blundell, 1868 Braman	2	7
4	1825 Blundell and Waller, 1826 Ralph, 1826 Jewell 1827 Douglass Fox, 1829 Savy, 1829 Goudin, 1829 Bird, 1829 Philpott, 1830 Ingleby, 1835 Healy and Frazer, 1842 Blasius, 1845 Brown, 1857 Mastin. 1860 Michaux, 1866 Gentlehomme, 1868 Rautenburg	16	64
5	1827 Barton-Brown, 1834 Kilian, 1835 Turner, 1840 Lane	4	20
6	1851 Devay and Desgranges, 1851 Sacristan	2	12
6½	1866 Martin and Badt, 1870 Beatty	2	13
7	1856 Higginson	1	7
7½	1833 Schneemann	1	7½
8	1826 Doubleday, 1827 Walker 1829 Blundell and Lambert, 1851 Marmonnier Senior	4	32
9	1826 Waller and Doubleday, 1851 Masfeu, 1861 Martin.	3	27
10	1860 Higginson, 1870 Martin, 1870 von Belina	3	30
11	1832 Bickersteth	1	11
12	1825 Brigham, 1825 Blundell and Urius, 1833 Walton,	3	36
13	1833 Bauer	1	13
14	1825 Blundell and Doubleday	1	14
15	1828 Howell, Ravis and Doubleday, 1828 Clement, 1863 von Nussbaum	3	45
16	1828 Prichard and Clarke	1	16
17	1857 Wheatkroft	1	17
22	1840 Richard Oliver, 1848 Greaves and Waller	2	44
24	1857 Wheatkroft	1	42*
		68	* Error.

Thus, for every successful transfusion an average of 6, 96 ounces of blood. Besides the above non-fatal cases, there are the following entirely of human blood of which the *quantity* is not mentioned: 1830, Soden's table, No. 13; 1833, Höring; 1842, Wolf in St. Petersburg; 1842, Abele; 1852, Schumann; 1856, Simson; 1859, Higginson; 1858, Dutens. Besides, there must be counted among the successful, or, to translate literally, not fatal transfusions, those two of Dieffenbach in 1830, resulting in melancholy or erotomania; then the number of not fatal transfusions with human blood will reach the considerable height of seventy-nine cases.

Gesellius gave three other tables similar to the above, which I will not transcribe, but only give the results. The first is a table of fatal cases of transfusion with human blood. Entire (ganzem), fifty-two cases. Aggregate amount of blood, 400½ ounces.

The second contains *not fatal* cases of transfusion with defibrinated human blood. Thirty-six cases. 258½ ounces.

The third contains *fatal* cases of transfusion with defibrinated human blood. Sixty-six cases. 460 ounces.

Let us criticise these statistics of Gesellius, for they certainly place the matter of transfusion of blood in a very different light from that in which it must be viewed if we refer to later operations only, those performed in the United States especially. Though this monograph is comprehensive, and as complete as could be expected, with regard to the bibliography of the subject, and the reference to cases, it is lacking in the essentials for the formation of a judgment concerning the *curative* value of transfusion in those desperate cases where all ordinary means are likely to fail, and to which alone it ought to be applied. Without the *details* of the cases, we can not form any opinion as to their fitness for the operation, and consequently as to whether they were *cured* or simply *recovered.* The meagre details which he does give are not calculated to inspire confidence in the accuracy of his tables. For example, case 1: A most remarkable case is dismissed, after the operation, with this brief and unsatisfactory note: "The boy appeared exceedingly well; all dullness of mind and body disappeared. He grew visibly fatter, and all who knew him were astounded." This reads like a miracle. We must infer that he grew visibly fatter at once, that is, that his friends could *see* him grow, and were astounded, as well they might be. Again, case 2: Is that of a *healthy* man transfused with animal's blood, a most important and interesting experiment; but out of place in statistics designed to show the *curative* value of transfusion. How many more are similar to this we cannot tell. Again, history informs us that, *within a year* after Denis' successful cases (in 1666), so many fatal results followed attempts at transfusion, that it was interdicted by law unless sanctioned by the "Faculty" of Paris; yet the cases mentioned in Gesellius' table as having recovered in 1666 and '67 are all recorded as *recoveries*, except one, which has the significant note: "Died, but not from transfusion." It may be well, also, to mention the fact that a brother German, whose name escapes me, has issued a pamphlet attacking the position of Gesellius, and that the latter has rejoined in a supplementary monograph, and so the contest is going on.

One fact in his tables, however, is of great importance, and will, without doubt, strike most of us with surprise; that is the almost perfect impunity with which it was found possible to inject large quantities of the blood of animals, of different kinds, into the human system. It has, it seems, been tried by quite a number of experimenters, some in this country, and, according to these statistics, with no unfavorable result. It has been considered almost, if not quite, a settled question among us, of late years, that the practice was a dangerous one, and hardly justifiable. In illustration of this, allow me to quote the remarks of Prof. Flint, Jr., in the discussion, in reply to a suggestion of Prof. Peaslee, that experiments should be undertaken to ascertain the degree of safety with which animal's blood could be transfused. He said "that the subject had already been fully investigated by physiologists, and it had been found that the introduction of blood of inferior animals into the circulation of the human subject is attended by very great risk. * * * The introduction of any considerable quantity would, without doubt, be an exceedingly dangerous experiment to perform. The experiment of introducing the blood of an animal having *oval* corpuscles into the circulation of an animal whose blood contained *round* corpuscles, has already been tried for the purpose of ascertaining, if possible, the length of time occupied by the oval bodies in making the round of the circulation. Experiments of a similar nature have been performed upon sheep, dogs, etc. In all these cases, however, death subsequently followed; which showed that the animal would not tolerate any considerable quantity of blood in the system that had been taken from one of another species" (Op. Cit. p 190). Neither Prof. Dalton nor Prof. Hammond could enlighten me very much on this subject, and both seemed to consider that the question was practically settled until reöpened by the recent publication of those experiments recorded in the monograph of Gesellius. However, Dr. Hammond himself, in August, 1849, performed two of these experiments with the blood of animals, but never made them public, because, being then a young assistant surgeon in the army, he feared to bring down on himself the ire of his superiors for rash experiments. He was in camp, *en route* for New Mexico, when the cholera broke out in his command. A Swiss, 22 years old, was in collapse, and moribund. With a most imperfect apparatus, he transfused from 16 to 18 ounces of bullock's blood. In the case of a German, 40 years old, in the same desperate strait, he did the same. They both revived, and lived about six hours. He considered that their life was, without doubt, prolonged.

Dr. Flint speaks of transfusing blood containing *oval* corpuscles, and says animals will not tolerate blood in the system belonging to another species. He means probably blood containing corpuscles of a different size and shape. But why resort to blood of this description, when the blood of all the mammalia contains *round* corpuscles, and, what is remarkable and important, *smaller* corpuscles than the human subject. Thus, according to Gulliver and other physiologists, the corpuscles of man measure 1-3200 of an inch; those of the ox 1-4267; of the sheep 1-5300; and even that of the rhinoceros is less than that of man. As Prof. Dalton remarked to me, "His (Gesellius') experiments may be well worth following out." In the "Medical Record" for May 15, I find a short paragraph from a German newspaper stating that Dr. Hasse, of Nordhausen, has transfused successfully with lamb's blood in twenty-three cases. He does not state if he had any unsuccessful cases. These cases date only from May, 1873. He transfused *directly* from the artery of the animal to the vein of the patient. That one individual, in less than twelve months, should have had twenty-three cases actually *requiring* transfusion, seemed incredible. But, subsequently, on consulting the periodical, from which the extract was taken,* I find some explanation in the fact there stated that, in at least twelve of these cases, and twelve only are referred to at all, they were not such as to involve the issue of life and death, but mainly of expediency. "Five were cases of phthisis, two chlorosis, two cachexia after severe illness, one cachexia after caries of vertebræ, one *carcinoma ventriculi,* and one severe hemorrhage after *placenta prævia.* This last case recovered rapidly. The two cases of general cachexia recovered gradually, and the chlorotic case only very slowly. The patient with carcinoma was temporarily benefitted, and the one with spinal disease improved in general health and had less suppuration. The results in the phthisical patients were wonderfully satisfactory." They would have been more satisfactory if we knew what the results were, whether they were temporary or permanent, etc. There is just this indefiniteness about almost all these reports of transfusion which prevents their being of much practical value to us as statistics. Now we see in what a different light these statistics appear, with this additional history, from that reflected on them by the short paragraph in the "Record." Now, as regards the *immediate* effect of the transfusion of animal's blood, we get some information to which Gesellius' extensive monograph does not allude. It is stated that "the reäction following the operation was very violent. There was marked dyspnœa, which even amounted nearly to apnœa, and necessitated interruption of the operation after sixty or ninety seconds. Half an hour after there was a violent rigor, and the temperature rose to 40.9 C. (105.6) F., and deep sleep followed, and on waking a feeling of comfort was experienced. The patients quickly gained several pounds in weight (how quickly?), and their muscular strength and mental energy rapidly improved. In a few cases there was a slight excretion of albumen, and the coloring matter of the blood in the urine." In this connection it is important to quote the interesting experiments very lately made by Dr. Landois, of Griefswald, "to determine the changes which take place in the blood of one animal when transfused into another of a different species." He was led to investigate the subject in consequence of the use which has lately been made of animal's blood for transfusion into the human subject; and his results are published in the "Centralblatt" for Dec. 1873, Nos. 56 and 57.*

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*(Tagesblatt du 46 Norsammlung Deutcher Naturfoscher; Wiesbaden; No. 7, 1873). London Medical Times and Gazette, May 30, 1874, p 597.

"Dogs were injected with the blood of man, of sheep, cat, guinea-pig, calf, pig and pigeon, etc. The frog was especially studied as the subject of transfusion of the blood of all the animals enumerated, as well as of the pike, and the *rana esculenta* was injected with the blood of the *rana temporaria*. It was found that if from 0.5 to 0.8 cubic centimetres of fresh or defibrinated mammalia blood were injected into the veins of a large frog, changes rapidly occurred in it, the most marked being a dissolution of the red corpuscles, so that the frog's serum acquired a deep ruby-red lac color, (Lackfarbe) from the hæmoglobin set free from the corpuscles. In transfusions with rabbit's blood, the dissolution was nearly completed in from three to five minutes, and in other animals generally in from twenty to thirty minutes. Dog's and pigeon's blood resisted the longest."

Among a variety of other interesting and ingenious experiments, which require more space than I have at command, a "frog's blood (either fresh or defibrinated) was also mixed with the blood of other animals, and examined microscopically, or else their blood was examined in frog's serum. It was then found that the red corpuscles, often after assuming an irregular outline, and exhibiting lively molecular movements, became pefectly globular, and so appear smaller than before; they then become paler and paler, till at last only the "stroma"* remains visible, and this at last also disappears. The stromata often aggregate into masses, and thus can give rise to embolisms, and consecutive inflammatory phenomena in the circulation." The blood of one mammal dissolved the corpuscles of another, but in very varying degrees, according to the animal. The corpuscles of one being much more resisting than those of another, while the serum of one has also much more solvent power than that of another. It would seem as if we should be influenced by this fact, if it is established by other observers, in our choice of animals for transfusion. "The dissolved constituents of the blood are disposed of in two ways; they are partly excreted principally by the urine, but in smaller and uncertain quantities by the bowels, uterus, bronchi, and into the serous cavities. The other part probably goes to the nutrition of the receiver."

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* London Medical Times and Gazette, May 30, 1874.

Dr. Landois "believes that transfusion may benefit the receiver in three ways—1. By bringing nutritive material into his body. 2. By the oxygen which is derived from the dissolved blood-cells, and in its serum. 3. By possibly, in certain circumstances, improving the mechanical conditions of the circulation. He does not think that there is much probability of the foreign blood-cells ever taking on themselves the physiological functions of those of their receiver."

"In consequence of the partial destruction of the cells of the receiver's blood by the foreign serum in some animals (e. g. the rabbit), symptoms of great severity and danger may occur after the operation, such as immensely quickened respiration, dyspnœa, convulsions, and even death, or asphyxia may follow it." Symptoms of this kind actually, as we have seen, did follow it in Dr. Hasse's cases. "If life is sufficiently prolonged, the urine becomes bloody and albuminous." "Death may occur, after copious transfusions from the rapid massing together of the foreign (or the animal's own) blood-cells, which leads to extensive coägulations of fibrin in the vessels; and many kinds of blood exhibit the phenomenon that, when mixed with other blood, their corpuscles aggregate into masses, which may give rise to capillary embolisms in the lungs. The danger of the transfusion, then, into the blood of different animals, depends on the relation of the species employed."

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* The term "stroma" applied by Rollet to the blanched, pale, globular residue of the red corpuscle after removal of the coloring matter.

Since commencing this paper, some additional cases have occurred, or have fallen under my notice, to which it is necessary to refer; but first I desire to review briefly a case mentioned by Dr. Barker, that occurring at Bellevue Hospital, and concerning which some additional particulars have come to my knowledge within a few days. The subject of this case, reported by Dr. F. J. Metcalfe, I happened to see and examine the day previous to the operation. There was a sudden loss of a very large quantity of blood some hours after the operation. The patient was not pulseless at any time. My friend, Dr. B. D. Taylor, now of Highland Falls, near West Point, who performed the operation, informs me that he furnished sixteen ounces of blood from his own arm, and another member of the house-staff furnished three ounces, the largest amount of human blood which I have known to have been used in any case. This was aided by nutritious and stimulating enemata, digitalis to stimulate the heart's action, hypodermic injections of strychnia, and the patient survived, according to Dr. Taylor's recollection, twenty-four hours; according to Dr. Metcalfe's report, "forty-eight to sixty hours," and yet she succumbed at last. This is, therefore, a very discouraging case, and should stimulate a further inquiry into one mooted point; whether it is not proper, in all cases, to keep the vessels *filled*; if not with blood, with a proper saline solution, added to it, or injected in the intervals of the sanguineous injections, *pro re nata*, or with the blood of animals. Two cases, which will now be mentioned, seem to render it still more difficult to generalize, or to draw definite conclusions as to the proper method of transfusion, especially as to the *amount* of blood necessary, or even safe.

It has been stated, in the discussion before the Academy of Medicine, that six cases have occurred in this city, all fatal. In 1869, one of the most interesting cases on record occurred, and a successful one. Dr. Buchser, of this city, was the operator, assisted by Dr. Guleke. It is reported in the "Medical Record" for October, 1869, and referred to by Gesellius as having occurred in 1868. In this case it certainly appears that no remedy short of transfusion of blood would have availed; and, strange to say, only three ounces of blood (not defibrinated) were used. The following significant fact is noted: "July 1. Patient received ferri corbonat. alcohol, and drank daily two quart-bottles of claret. Previous to his illness was never used to wine, and now states that he could drink a quart at once without any ill effects." In the very number of the Record (April 1, 1874), containing the report of Dr. Barker's paper is a report by Dr. Joseph W. Howe, surgeon to the Charity Hospital, of a very successful case; with the recommendation also of perhaps the simplest and best method of performing the operation. Here, also, only a small quantity of blood was injected (four ounces). In only two of the cases alluded to by Dr. Barker, in his paper, is the quantity of blood mentioned, a very unfortunate circumstance, but for which he is not, of course, responsible. But, in both of them, the amount is comparatively large; eight ounces and thirteen, or, according to Dr. Taylor, nineteen ounces. During the discussion, Dr. Peaslee remarked that he "had been struck with the fact that the use of so small a quantity of blood had caused the recovery of the patient in many reported cases"; that is, from two to four ounces. "He had been inclined," he says, "to reject these individual cases as not being very reliable."

Within the past few days, my medical friends have furnished me two other cases never published. The first occurred some eighteen months ago at Bellevue Hospital, for the account of which I am indebted to J. C. Young, M. D., of the resident medical staff. The second occurred a few days ago at the New York State Woman's Hospital, for the history of which I am indebted to the operator, Professor T. Gaillard Thomas.

CASE I.—John Dauphy, aged twenty-two, was run over by a railroad car and sustained a compound comminuted fracture of left humerus, complicated by an opening into the shoulder-joint. Sent to Centre-street Reception Hospital, where the brachial and other arteries were found bleeding, and tied, but not until a large amount of blood had been lost. Received into Bellevue Hospital the following day at 1:15 P. M. Dr. Wood immediately performed amputation at shoulder-joint. Five hours after, the pulse rose to 160, and became very weak and gaseous. He continued to lose some blood after both operations. Stimulants and food were given him by every channel. At 2 o'clock A. M. the patient sank so low that transfusion was decided upon. Five ounces of blood were taken from the arm of Dr. Terriberry; it was surrounded by warm water and defibrinated, and, by means of a syringe enveloped in warm cloths, was injected into the median basilic vein of the patient. Force of the heart and pulse a little increased, and the frequency diminished ten beats. One hour later six additional ounces were injected with about the same result. But shortly after this the patient became delirous, and continued in this state until 6 A. M., when he died.

CASE II.—In reply to your letter of the 11th, I state that I transfused blood into the vein of a patient from whom I had removed, by gastrotomy, a fibrous tumor of the uterus weighing fifty pounds. The transfusion was performed about seventeen hours after the operation, and at the time the patient was pulseless at the wrist. About four ounces of defibrinated blood were introduced into the patient's arm. In a short time a flickering pulse was perceptible in the radial artery, and the patient, who was, at the time, apparently *in articulo mortis*, rallied and survived about twenty-four hours. I repeated the operation in about eighteen hours after this time (forty-two hours after removal of tumor), and injected about six ounces more of defibrinated blood. But this seemed to have no marked effect, and the patient died. The blood was obtained from strong and healthy men. I commenced the operation with Aveling's apparatus, which I found impracticable, and resorted to an instrument made by Tiemann, on the principle of the stomach-pump. I think life was prolonged for twenty-four hours by the operation.

These two histories of operations performed in two of our great hospitals, by men well accustomed to surgical manipulations, only emphasize more strongly the remarks already made. It is well to note the failure of Aveling's instrument, in Prof. Thomas' hands, so highly commended lately.

Just at the last moment, I have received a letter from Dr. Joseph W. Howe, furnishing the notes of another case of transfusion performed by him at Charity Hospital a few days ago. They are as follows:

"The patient was very much reduced by excessive discharge from a large ulcer of the leg and necrosed bone. I first placed in the aspirator (this is the instrument recommended by Dr. Howe for transfusion) a solution containing ten grains of carbonate of ammonia, which became mixed with the blood as it entered the instrument (this is to prevent coägulation); I injected about six ounces altogether. The patient's appetite and strength improved for about a week, and then began to fail. He left the hospital in about the same condition as when the transfusion was made."

I am aware that the foregoing observations have somewhat of a desultory and disconnected character, due partly to the fact that an important portion of the information which they involve fell under my notice after the greater part of my paper had been prepared. It was not intended, by any means, to be exhaustive of the subject, or to present any novel facts or theories; nor does it even seek to *establish* any point of practice, but simply to bring this question before the Profession in all its bearings, which has never yet been done. As has been stated, there have been periods in medical history when a sort of fashion for experiments in transfusion has arisen; and, for a few years, quite enthusiastic efforts have been made by distinguished men in different countries to establish the practice; but a reäction has, each time, led to its almost total abandonment for a long period. One of these revivals occurred in 1819 through the experiments of Dr. Blundell, of London. Quite recently symptoms of another revival have manifested themselves, and now appears to be an auspicious period for such a thorough scientific investigation of the whole subject, as the exacting spirit of the age demands, as has been accorded to other mooted questions of professional importance, and such as may effect the establishment of some *principles* by which we may be guided in forming an opinion as to the propriety of the operation, and as to the details of its execution.

At present we are, to employ an expressive, if not scientific phrase, all at sea on this subject; as to what conditions of accident or disease it is applicable; whether blood or some other fluid should be employed, alone or mixed, or interchangeably; if blood is necessary, whether animal or human; whether animal's blood is even safe in a healthy subject, whether it should be defibrinated; how much is necessary or safe; how often a repetition is called for; what apparatus shall be preferred; what auxiliary means are proper or essential. Can any one answer any of these questions satisfactorily to any person but himself? Or can we consider any one of these important points established?

N. B.—Since this paper was read, I find in the July number of this Journal an article on transfusion by Dr. Morton, of the Pennsylvania Hospital, in which he gives the histories of three successful cases of his own and four of Dr. J. G. Allen, two of which may be called successful. Defibrinated blood was used. In some of the cases the *amount* is not given. The smallest amount was two ounces (successful), the largest eleven ounces.

In the same number is a short paragraph extracted from the "British Medical Journal," giving the experience of several distinguished German experimenters with animal's blood, besides those mentioned in this paper. Küster mentions serious symptoms supervening upon the injections, as dyspnœa, cyanosis, pains, shivering, rise of temperature, etc. These symptoms, as usual, disappeared after the lapse of a few hours. Sander, of Barmen, also warns against the indiscriminate use of animal's blood. One of his patients had symptoms of uræmia, which lasted four days. It is very evident that further experiments with animal's blood should be made; and that, if possible, some measures should be devised for obviating these unpleasant symptoms. It might be well to try the effect of diluting the blood with proper saline solutions, such as have been often resorted to successfully, and to which allusion has been made in this paper.

I deem it my duty to state that, within a day or two, I have seen Dr. Ely, who informs me that his patient gradually sank and died, after his letter was written, with symptoms of rapid phthisis pulmonalis, constant cough, and abundant purulent expectoration. She had never enjoyed good health, and such a development, under the circumstances, is not at all surprising

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ART. III.—GYNÆCOLOGY. By MONTROSE A. PALLEN, A. M., M. D., Lecturer on Surgical Diseases of Women in the Medical Department of the University of the City of New York; late Professor of Anatomy Missouri Medical College; Surgeon to the Gynæcological Department of St. Luke's Hospital of St. Louis; Consulting Physician to the St. Louis City Hospital, etc., etc. [Read before the St. Louis Medico-Chirurgical Society July 27, 1874.]

Gynæcology claims its birth-place on the banks of the Nile, coëval with the Sphynx and the Pyramids, and it has a record of fifty centuries. The historical considerations of the science of women's disorders present the usual waves of obscurity and light that belong to all the branches of the healing art. The papyrus scrolls in the Berlin collection and Mosaic law, as well as the concurrent testimony of Hippocrates, or those who wrote under that name, fully determine these propositions. Until the past forty years, no actual positive advance had been made since the time of Aretæus and Galen. The destruction of the library of Alexandria by Omar, in 642, burned out scientific research, and gynæcology almost perished in its flames, only to be revived synchronously in France and England by Recamier, Lisfranc; Sir Charles Clarke, and Gooch.

A sketch of the earlier writers on medicine, together with the revelations of Pompeii, indicate that some of the proudest achievements of the foremost of modern gynæcologists are but repetitions of the labors of Asclepiades, Moschion, Galen, Ætius, and Paulus Ægineta, who described and used sponge-tents, medicated and supporting pessaries, the uterine sound, division of the cervix-uteri, the cure of sterility, retroversion, reposition of misplaced pelvic organs, rectal examinations, the uterine and vaginal douche, hip-baths, fumigations of the uterus by means of a reed, suppositories, etc., etc.

Many of these were rude and crude, yet they were the progenitors of the ideas, the preconceptions of many supposed modern exploits. Such, for instance, as the uterine sound revived by Sir James Y. Simpson, and known to the Profession as his, but claimed by the French for Samuel Lair, and with justice, as he proposed in 1828, to penetrate the cavity of the uterus with a silver probe for the purpose of exploration; all of which, however, was described in 1640 by Wierus, who evidently obtained it from Ætius, who speaks of the rectification of retroversion and its diagnosis per rectum, as well as the reposition of lateroversion by the finger and the sound. Thus we may trace much of the pith of gynæcology throughout the entire range of the history of medicine. Hippocrates advised in the treatment of obstructive dysmenorrhœa, the dilation of the internal orifice of the womb with leaden instruments and bougies. Gentian root, prepared sponge, and afterwards the wearing of intra-uterine stems of horn, ivory, or silver, in the treatment of similar affections, are quoted by Sir James Simpson from Mr. Cook's "Marrow of Chirurgery," published in 1627, and from Henry von Roonhuysen's "Medico-Chirurgical Observations," published in 1676; this latter even hinting at division of the two orifices by the knife.

These brilliant and learned gynæcologists of two centuries ago, together with that eccentric but philosophic Scotchman, Jacob Primrose, "De Morbis Mulierum," published in Rotterdam in 1665, seemed to have compressed the labors of the present era of uterine pathology and therapeutics into the seventeenth century. Whether they ever practiced what they wrote is a question *sub judice;* yet, that they were laborious and patient scholars, is beyond a doubt. They may have been brilliant and inventive geniuses, original in all they did and wrote, yet the most of what they wrote was foreshadowed by Moschion, Antyllus, Aretæus, Ætius, Celsus, Albucasis, and Trotula, who, in their various writings, make mention of uterine ulcers, tumors, polypi, abscess, atresias of the uterus and vagina, diagnosis by means of touch and the speculum, displacements, hysteria, uterine suffocation, etc., etc.

The speculum is but the revival of an instrument of common use in Egypt, Greece, and Rome, as there are preserved in the Musco Borbonico of Naples two specula; one very similar in form to Cuscos' bivalve, and the other to Nott's improved instrument of present common use. The double curved catheter, very like the sigmoid of Sims, lies near them. These gynæcological adjuvants were exhumed from Pompeii in 1818, and were used in that provincial city nearly two thousand years ago. What, then, must have been the armamentaria gynæcologica of Rome, the capital; and what must have been the skill of her practitioners, when Pompeii leaves such evidences of education and superiority in the art of treating diseases peculiar to women?

The influences, however, of these early gynæcologists have not been of much practical value to the Profession, because their therapeutics were lost in the dim vista of ages, and their pathology was so barren of clinical facts. They are sought after as curiosities of medical literature, and are to be remembered, by medical men, as the pioneer landmarks now traced as proofs of title to the heritage we claim, rather than facts of actual scientific import. For centuries after the destruction of the Roman Empire, nothing was done save the transcribing from one author to another, without any originality of observation, but with the prolixity and multiplicity of detail embodied by the materia medica and arcana of alchemic tradition. Gradually, as the sixteenth century passed from its adolescence, some of the useless rubbish of repetitions and authorities were cast aside, and medical men began to collect and report original observations, to arrange the medicine and surgery of female diseases into something of a system, as witnessed by the writings of Wierus (1557), who described the uterine sound, and published in his "Observationes Medicariorum" the memorable case of a swine gelder, who removed the ovaries of his own daughter; Felix Prater (1602), who descanted at large upon atresia of the vagina; Scultetus (1620), who gives precise directions for the treatment of uterine ulcers, the use of the speculum, etc.; Cook (1627).

Primrose (1665), von Roonhuysen (1676), mentioned above; Fabricius de 'Hilden (1679), who devotes some chapters · to "uterine atresia," and others, such as Ambroise Paré (1640), Jacobes Reuffers (1587), Galbelchoner (1627), Sennert (1631), and Zacutus Lausitanus (1640), who describe many cases and facts peculiarly worthy of note, and indicative of much learning and gynæcological research.

The intellectual culture of the Elizabethan period and the magnificence of the reign of Louis XIV., were not confined alone to the arts and belles-lettres, but were likewise impressed upon medicine. Prejudices were broken down and obstetrics were cultivated by men. This very important point gained, a true step was made toward progress, and gynæcology as a consequence began to loom up as the twin sister of midwifery.

The Chamberlens, Guillemeau, Mauriceau, Portal, Deventer, Giffard, Smellie, the Hunters, Rigby, Denman, Baudelocque, Burns, Merriman, Blundell, Naegelé, Ryan, Gooch, the Ramsbothams, Ashwell, Collins, Moreau, Négrier, Dubois, Velpeau, Churchill, Cazeaux, Dewees, Meigs, and Hodge mark the periods of obstetric advance, and the addition of a few other names likewise point out the progress and career of gynæcology. A cursory glance at some, a mere mention of others, and an analysis of a few typical authors will give us some idea of the growth of gynæcology as a specialty in practice. Like all other specialties, gynæcology must be studied and practiced after the generalities of medicine are studied and practiced. All specialties are but parts of the generality, they are "distinct as the waves, but one as the sea."

The primitive epoch of gynæcology, the last decennium of the seventeenth and during the eighteenth century is represented by Garangeot (1753) on "inflammation of the uterus"; Chopart (1753) on "prolapsus of the uterus"; Sabatier (1757) on "displacement of the uterus and vagina"; Astruc (1765) a "treatise on diseases of women in six volumes"; Desgranges (1766) on "falling of the womb complicated with elongation of the anterior lip of the cervix"; Levret (1773) on "displacement of the womb" and "polypi of the uterus"; Chambon (1785) a "treatise on the diseases of girls, married and pregnant women," in six volumes; Morgagni (1787) on "obliquity of the uterus," "the flexions, inversions, retroversions, and hernia of the uterus"; and Vigarous (1801), who published two volumes, "an elementary course on the diseases of women." During this period but little was done in gynæcology outside of France, notwithstanding the obstetric progress of Great Britain and Germany, with the exception of Hunter's elucidation and treatment of retroversion of the uterus in 1754, and Krüger's monograph on the "Pathology of the Ovaries," published in Göttingen in 1782. The next epoch, that of theoretical and disputative gynæcology, commences actually with the introduction of the speculum by Recamier (1818), and its popularization at Hotel Dieu in Paris. The bitter and personal quarrels engendered by the uses and abuses of this instrument are well remembered by our fathers, and fortunately are almost as well forgotten by our contemporaries; "so mote it be." But as the speculum is the foundation on which this interesting period is based, its history will be useful because gynæcological pathological anatomy, pathology, hygienics, and therapeutics are but the resultants of the course of observations and experiments engendered by the impetus it gave to the study of gynæcology.

As mentioned before, the speculum is not a modern invention, it was but revived in 1801 by Recamier and its advantages only insisted upon in 1818. According to Ætius, it is to Archigenes (who also wrote fully on abscess of the uterus, the pelvic cellulitis of Sir James Simpson), that we owe the first introduction of the speculum; and Paulus Æginita, in speaking of the "*diopera*," says that it should be "introduced in the vagina closed, then turned with the handle up, before being opened and the cavity of the woman distended." This instrument consisted of three blades opened by a screw.

Avicenna and Albucasis (of the Arabian school) each describe under the name "*vertigo*" a similar three-bladed instrument.

André de la Croix, in the "Officini Chirurgica," likewise figures this instrument.

Franco (1561), Ambroise Paré (1585), Spachius (1597), Scultelus (1665), and Garangeot (1723), have all described and recommended its use.

It will, therefore, be seen that the credit of its invention was wrongly given to Recamier, but he is, nevertheless, entitled to whatever merit the Profession accorded him for its popularization.

The very interesting facts connected with the introduction of this instrument, the apparent indifference it at first engendered, then its enthusiastic adoption and equally hostile rejection by opposing factions, must not be forgotten, and the perusal of the contemporary literature, such as Lisfranc's "Clinique de la Pitie," Vidal de Cassis' "Pathologie Externe" and the numerous special articles written by Recamier, Guillow, Mélier and Ricord, are well worthy the student of our times. This period embraces the labors of Sir Charles Clarke, Gooch, Rigby, Blundell, Lizars, Ryan, Macintosh, Ashwell, Marshall Hall, and Henry Bennett in Great Britain. Blatin and Nivet, Jobert de Lyon, L'heritier Colombat d' Isère, Roux, Boivin and Dugès and Jobert de Lamballe in France, were certainly not behind, and in some respects they were more progressive than their English neighbors. The classical work of Mdme. Bovin and Dugès, the comprehensive compendium of Fabre, the laborious and brilliant "Cliniques" of Lisfranc, and the scholarly "Pathologie Externe" of Vidal de Cassis, mark the transition from the disputative to the period of pure science as inaugurated by Aran and Nonat, who, as well as Sir James Y. Simpson, in Britain, and Scanzoni, in Germany, opened up the unexplored regions of gynæcology proper, which had hitherto been marked upon the map of medicine as distinct and special territory, but in which few surveys had ever been made.

In fact, no one had ever directed himself to the practice of gynæcology alone. As an exclusive specialty, it owes its existence to Dr. J. Marion Sims, of whom farther on.

To the earlier labors of Sir James Y. Simpson we must devote more than a passing notice, as much of importance, both with regard to diagnosis and therapeutics, was thus prominently brought before the Profession. In 1843 he advocated the uterine sound as a means of diagnosis, and introduced the intra-uterine stem pessary to overcome malpositions.

The division of the cervix uteri from the internal to the external os for the treatment of obstructive dysmenorrhœa was first performed by him in 1844; and in 1849 he used sponge-tents in order to explore the expanded cavity of the uterus in diagnosticating and treating intra-uterine polypi.

In six years he revolutionized gynæcology! During this period of pure science, Simpson, Sims, Spencer Wells, Koeberle, Graily Hewitt, Thomas, Peaslee, Klob, Emmet, and Barnes have not been idle. Nor should we overlook the labors of Mayer, of Berlin; Braun, of Venice; Simon, of Heidelberg; Sigfert, of Prague; Greurser, of Dresden; and Veit, of Bonn, who are the worthy successors of Kiwisch, whose genius did more for gynæcology in Germany than any one else.

In mentioning these eminent authorities, we single them out from the many other worthy laborers as representative gynæcologists, types of the modern progressive school—the school of observation and fact.

The epoch of Simpson has produced two classes of gynæcologists—the physiological and pathological.

The latter class owes its distinctive advantages to the labors of the former, because upon the physiology of the female sexual apparatus is based much of the most important therapeutics of the last twenty years.

In fact, from the labors of Coste, Raciborski, Négrier, Gendrin, Bischoff, Pouchet, Rouget, Kobelt, and His, we are enabled to understand the mutual relations of ovulation and menstruation, and the disorders of the annexes.

Embryology, histology, and teratology have likewise contributed to the solution of hitherto obscure and mooted points, and the next ten or twenty years will develop much that is as yet unknown in the practical workings of gynæcology, in consequence of the knowledge induced by these departments of science.

In the departments of embryology and histology so much is already known that it would be quite improper to dwell upon them; but in teratology, we would fain linger a moment, because so little has been done in the United States toward its development as a distinct branch of science, and its application to gynæcology is as yet scarcely appreciated.

Teratology, or that science which treats of monstrosities and malformations, finds a rich field in the study of the anomalies of the female sexual organs, and the operative procedures induced in consequence of such knowledge are but the offsprings of a highly cultivated intellect and a mature judgment coädded to a keen appreciation of the normal anatomy and physiology of the female pelvis.

Many of the questions of amenorrhœa, dysmenorrhœa, menorrhagia, and the induction of premature labor, as well as certain surgical procedures, such as amputation of the cervix uteri, operations for atresias of the vagina and uterus, and even medico-legal questions may be determined and decided by a thorough knowledge of teratological facts.

Any part of the entire human organism may suffer an arrest of development, or the development may be excessive, and the consequent vice of conformation is in direct relation thereto.

The labors of Forrester, Kussmaul, Léon Lefort, Pueck, and Klob all point to the fact that permanent teratological conditions are but indices of transitory embryological states.

The anomalies of the ovaries, such as the absence of one or both, their excessive or imperfect development; their faulty implantations; their hernias, etc., etc., go far toward the explanation of menstrual disorders, extra-uterine pregnancies, sterility, pelvic hæmatoceles, etc.; and they are more or less frequently met with in cases of complete or apparent absence of the uterus, embryonic or infantile uterus, hermaphroditism, etc.

The anomalies of the fallopian tubes are quite as frequent as are those of the ovaries, and have an equally important bearing upon many pathological conditions, particularly with regard to sterility and extra-uterine fœtation, and as a consequence the consideration of gastrotomy in the latter condition.

The anomalies of the uterus are not only important questions of gynæcology with regard to the health and well-being of the woman, but the serious attention of medical men is frequently demanded in the consideration of her sociological status, her fitness for marriage, and her capacity for maternity, in consequence of the presence of certain vices of conformation.

There may be entire absence of the uterus, or it may be infantile, imperfectly developed, or with one horn only (uterus unicornis); or there may be a double organ (uterus bicornis); or the fundus may have been hollowed out, leaving the organ like the heart of a playing-card (uterus cordiformis); or the embryological septum may not have been absorbed, leaving two cavities either in the body or the neck, or both, actually constituting two uteri to all intents and purposes (uterus bipartitus), etc., etc.

Many of these conditions are frequently encountered in practice, with or without coëxisting vaginal anomalies, such as partial or complete absence, atresia, duplicity, imperforation, etc. The certainty of some of these conditions, particularly of the uterus, should be a bar to marriage, or if marriage had taken place and conception ensued, the question of premature delivery would be of paramount importance, as no cases of successful issue have been reported, whereas, there are several on record of death having taken place under these circumstances.

So vast a scope does the field of gynæcology assume, that its importance is not as fully appreciated by the Profession at large as its votaries would desire.

The baneful influences of the monopathologists, such as J. Henry Bennett, who attributed the *all-in-all* to inflammation of the neck of the uterus, have not been swept away as rapidly as many errors in other departments of medicine. There are yet many old-fashioned eight-inch specula daily inserted into three-inch vaginas, and daily are the "ulcerations" of the neck of the womb eradicated and melted down by nitrate of silver and caustic potash. The entire gynæcological armamentarium of many practitioners, reputable and even celebrated in other branches, consists in a Fergusson speculum and a stick of lunar caustic! The methods of examination, the means of diagnosis, the facts to be elicited, the appreciation of conditions, the differentiation of homologous and heterologous formations, the philosophy of cause and effect, and the mutual relations of physiology and pathology, are the groundworks of gynæcological research, in a much more extended view than at first glance, we would be led to imagine.

Unfortunately, like all other specialties, gynæcology has been taken up by many whose zeal was greater than their capacities, and whose defective information led them to believe that much more could be accomplished than has been done. The patient worker, the enthusiastic scientist, the modest savant, knows that therapeutics has not kept pace with diagnosis, that he frequently can not remedy a discovered evil. Yet, he is compensated in the fact that what he does is in a spirit of reason, and not by the dictum of pure empiricism.

Physical diagnosis teaches him to discover the evil, and rationalism that it is curable or not.

The present status of gynæcology may be said to have been established, at least in the United States, and very materially advanced in Europe, through the instrumentality of that most ingenious and brilliant of surgeons, J.. Marion Sims. The thanks of the entire world have been tendered him, and whereever there is suffering woman, there will he have a fitting monument of gratitude, more durable than marble, more lasting than bronze.

The discoveries of Sims, his speculum, his operations, the popularization of silver sutures, the foundation of the "State Woman's Hospital" of New York, and the renown he shed abroad upon American surgery, endear him not only to all the gynæcologists of the land, but "grapple him with hooks of steel" to the hearts of the entire Profession of the United States.

So much might be said of the present condition of gynæcology throughout the entire civilized world that one scarcely knows how and where to begin or end. The entire range of pathological anatomy, pathology, medical and surgical treatment, as well as skillful diagnosis, are to be brought into requisition.

As one of many examples, let us glance for an instant at the disorders of menstruation which necessarily premise ovarian tubal or uterine disease, either organic or functional, primary or symptomatic.

Here the question of uterine displacement and stenosis, ovarian ectopias, tubal obstructions, or hepatic and hæmorrhoidal disease, moral and mental conditions, habits of life and influence of avocation, age, and hereditary predisposition, pregnancy and sterility, are to be summed up, to be weighed and sifted. The Gordian knot must be disentangled, not severed. This is a type of the gynæcology of the present age.

We thus see that the whole contents of the pelvis play a consentaneous rôle in the production of disease, and the gynæcology of the present period cares but little, if "inflammation" be what Bennet, Lisfranc and Récamier considered it; if it produce uterine deviations and flexions; or if the converse take place as believed by Velpeau and Valleix. The uterus is the central telegraph station which sends out and receives the messages from its annexes. It deranges the entire organism of the female when out of order, and it likewise receives the impress of much of the woman's economy. It registers all dispatches over the line of reflex telegraphy, and grumbles at the deranged galvanic currents of the ganglionic system. Yet the uterus is not the sum total of a woman's existence, and its pathological peculiarities have hitherto occupied a marked prominence in the consideration of woman's dieases, to the exclusion of other pelvic organs. It is not specially at variance with any of the pathological conditions of the rest of the system, although its physiology is apparently different from any other of the organs of the body, from the fact of its being divisible into distinct periods of quiescence, activity, and degenerescence.

A recollection of these facts enables us to readily appreciate the character of disease to which it is most usually liable. The pathological anatomy of uterine affections is the pathological anatomy of other muscular, lymphatic, mucous, and connective tissues. The flexions, hyperæmias, irritations, hyperplasias, aplasias, etc., of other similar structures, are here encountered, and many of these conditions are but symptoms of alterations of an organic nature, or the persistence of an embryonic, fœtal, or infantile state.

In corroboration of these statements, note the congenital persistence of anteflexion, which, at the period of puberty, gives rise to dysmenorrhœa, and becomes a source of much inconvenience and suffering, and may even debar the woman from the joys of maternity. During the whole of the prepubertic age such a condition is normal, and its persistence hereafter abnormal; an arrest of development takes place, the embryological impetus is lacking, flexion persists, fatty degeneration at the site of the bending ensues, and the entire life of the woman is changed.

Another example of these propositions is witnessed if amenorrhœa be present, as the factors in its production involve a knowledge of the formative process from the embryological curving of the ducts of Müller to the development of an ovum in the ovary. Yet, amenorrhœa is but a symptom of absence, imperfect development, or disease of one or both ovaries, of the Fallopian tubes, of the uterus, of stenosis of these latter, of complete or incomplete absence or atresia of the vagina, of imperforation of the hymen, of chlorosis, of pregnancy.

Such, then, is the status of the science of woman's disorders, made so by the conjoined labors of the microscopical school of Germany, as represented by Klob, and the clinical schools of Great Britain, France, and the United States, as represented by Graily Hewitt, Robert Barnes, Courty, and T. Gaillard Thomas. These writers have so systematized the study of gynæcology, that the individualizing of the specialty may be said to be due to them.

The monographists, particularly Spencer Wells, in Great Britain, Bernutz and Goupil in France, as well as J. Marion Sims, Washington L. Atlee, Thomas Addis Emmett, and Edmund Randolph Peaslee in the United States, have likewise contributed the offerings of their labors to the common cause of scientific research.

The work of Dr. Graily Hewitt, the first published of the modern scientific series, was issued in London in the latter part of 1863, and has undergone several new editions both in England and the United States, and as the forerunner of the other works, was a giant-stride toward the diagnosis and treatment of the maladies incidental to the female economy. The primary object of the work was "to afford increased facilities for diagnosis." Dr. Hewitt stated in the prefatory and introductory remarks, that "without diagnosis no advance can be made but on the imperfect basis of surmise and conjecture. Everything, in fact, turns on diagnosis, and once the diagnosis has been made, the path is comparatively clear." Within the ten years that have elapsed since the first appearance of the work, the vast contributions made to pathology and pathological anatomy have, in a measure, already changed its status with regard to certain tumors of the female pelvis; but the tabulation of the data obtained with and without physical examination, the chapters on diseases particularly observed in single, married, and parturient women; the methods of examination and what was learned therefrom; the character of the discharges from the female genital passages; the diagnosis and causes of sterility, together with those very sensible and practical directions in the second part concerning the treatment of diseased structures in the female pelvis, point out Dr. Graily Hewitt as a practitioner of rare judgment, ripe experience, and skillful application. Certain defects of arrangement were avoided by the next English writing author (chronologically considered), Professor T. Gaillard Thomas, of New York. Although favorably known as an accomplished scholar, a brilliant writer upon obstetrics, and a most elegant lecturer upon diseases of women, Prof. Thomas fairly took the Profession of the United States by storm when his book first made its appearance early in 1868.

Its reception was simply enthusiastic, notwithstanding a few adverse criticisms from our transatlantic brethren, the first large edition was rapidly exhausted, and in six months a second one was issued, and in two years a third one was announced and published, and we are now promised the fourth.

The popularity of this work was not ephemeral, and its success was unprecedented in the annals of American medical literature. The reasons for this are perfectly patent. The prevalence of pelvic disease is so common in the United States, and particularly in certain sections of the South and West, that the Profession were encumbered in its treatment by the theoretical crudities of Bennet, the quaint and learned prescriptions of Meigs, and the "irritable uterus" of Hodge.

Much was to be found in these works that was good, and also much of value was to be culled from the writings of West, Churchill, Scanzoni, and Tilt, but there was a general feeling that the key-note had not been struck; that the master's hand had not systematized the discordant elements. When Thomas' book made its appearance, the Profession of the United States were satisfied that a beginning had been made that augured much and well for the future. Six years is a long period in medical scientific research, but Thomas' work on "Diseases of Women" is still the leading native production of the United States.

The order, the matter, the absence of theoretical disputativeness, the fairness of statement, and the elegance of diction, preserved throughout the entire range of the book, indicate that Professor Thomas did not overestimate his powers when he conceived the idea and executed the work of producing a new treatise upon diseases of women.

In France, the labors of Professor Courty, of Montpellier, culminated in 1866, in the publication of what Pajot, Professor of Obstetrics in the University at Paris, said was the most classical production upon gynæcology that had ever appeared in Europe.

Omitting certain peculiarities of the school of Montpellier, the book, as an exposé of the present status of gynæcology, is unexceptionable.

The research and labor bestowed upon the "Treatise on the Uterus and its Annexes" is something marvellous. It is indicative of the enthusiast as well as the savant, and is truly a "book of good faith." The author aimed to harmonize the conflicting theories of Becquerel, Aran, Nonat, and Bernutz, as well as to utilize the scattered monographs of Kiwisch, Kœberlé, Veit, Braun, Mayer, Bernutz, and Goupil, Marion Sims, Baker Brown, and others, which were not familiarly known to the general reader, and in a measure inaccessible to the specialist, not having the facilities of a cosmopolitan library.

Courty has certainly avoided the defects of his predecessors in the French school of gynæcology, and his book is an arsenal of facts from which both student and practitioner may draw abundant information with regard to diagnosis and treatment; and as a résumé of the pathology and therapeutics of female pelvic difficulties, his statements are beyond cavil, and they bear the impress of studious, patient, and undisguised labor. He says: "I have preferred to give descriptions with all the truthfulness of facts, for I wrote them mostly with the patients before me, or drawing the elements from the selections and statistics of my own observation. I have done more, I have often traveled a long distance to gather new facts, in order to speak of no disease, no symptom, no medical or surgical treatment without having seen, practiced, and tested them, to be able to judge them."

The second edition of this work appeared in 1872, and Prof. Courty did not flag in his zeal for scientific investigation, notwithstanding his labors had been very much impeded by the Prussian war.

From 1864 to 1874, the monographs pertaining to gynæcology have been numerous and valuable, that of J. Marion Sims creating the most enthusiastic approbation and acrimonious opposition of any book appearing in this decennium. The "Clinical Notes on Uterine Surgery" are so well known to the specialist, that anything more than a passing notice is inappropriate. To the general practitioner I can not do any more than recommend its earnest perusal. It will more than repay casual reading; it is worthy of the profoundest thought.

The other monographs of more special importance are by T. Spencer Wells on "Diseases of the Ovaries," and Edmund Randolph Peaslee on "Ovarian Tumors," and Washington L. Atlee on the "General and Differential Diagnosis of Ovarian Tumors, with a Special Reference to the Operation of Ovariotomy," etc. The production of the English surgeon is the result of the accumulated experience of a vast number of cases, and is indicative of a self-reliance and conscious ability obtained only by years of triumphant success; and considering the amount of prejudice against ovariotomy which existed in Great Britain and on the continent of Europe, the labors performed and results obtained principally by Spencer Wells, are of the highest importance, and fully entitle him to the position he occupies as the greatest of ovariotomists.

The very finished and elegant book on "Ovarian Tumors," by Professor E. R. Peaslee, of New York, is as modest in its claims as its author is meritorious in reality. He says: "The time for oracular utterances in our art has passed, and every magisterial assertion should be challenged." He invites criticism, and he gives explicit expression to his views upon all practical points, "that they may be adopted or rejected upon rational grounds." The bibliography of the work is something extraordinary, and shows the classical scholar as well as the learned physician. More than two hundred and fifty authorities are quoted, from Aristotle, Atheneus and Galen, to the latest writings in 1870–1, by Schultze, Ellenhorst, Courty, Grenser, Waldeyer, and Spencer Wells. Peaslee and Atlee have also established the fact that to McDowell, of Kentucky, must be accorded the priority of ovariotomy. A review of the books of Wells and Peaslee, even of the most cursory character, must be omitted, as justice can not be done the subject in a limited space of a paper such as this. The reader who peruses them will want to study them, and to study them is a labor that will become an enthusiasm.

Whilst this year (1874) was still in its infancy, the American publication of "A Clinical History of the Medical and Surgical Diseases of Women," by Robert Barnes, M. D., London, made its appearance, and the work is now undergoing its baptism of criticism. Like most of the productions of British medical writers, it is filled with good, common, practical sense, and unlike many of the continental writings, its spirit is truly catholic, as it embraces the whole domain of science, and accords to the United States a generous amount of credit worthy of imitation. More than five hundred authorities are recorded in an alphabetical index, whence he gleans his information. Nothing seems to have escaped his polyglot pen; the literature of the past, as well as the contemporaneous writings of Germany, France, Italy, Spain, Russia, America, and Great Britain are made subservient to the demands of scientific investigation and accurate knowledge. The clear and lucid methods of diagnosis; the history and meaning of symptoms; the nature of touch, sight, and temperature; the revelations of the microscope; the reasons for the various discharges from the female genital passages; the conditions indicating necessity of examination; the significance of pain, its seat and character; the instruments serving for diagnosis and treatment; the pathology of fluxion, hyperæmia, congestion, and inflammation; the pathological anatomy of diseased and foreign tissue; and the application of therapeutical agencies, medical, hygienic, and surgical, for curative purposes, mark not only the progress of gynæcology, but demonstrate as well the advances of that general science which has learned to exsect bones and amputate limbs without the loss of blood; that evacuates pulmonary abscesses and cavities with an aspirator; that transfuses healthy blood to the anæmic and spanæmic invalid. Barnes' book is the typical exponent of gynæcology as it is now understood, and when we compare it with many of the productions that we were wont to look upon as most excellent authority during the past twenty years, we find that, however brilliant were Churchill, West, Tilt, Meigs, and Hodge, that the days of their usefulness are over. But we say so not in disparagement. Had these authors written in the present day, they would do as Barnes. The times have changed, and we change with them.

As a laborer in this department of medicine, I feel that, hitherto, its claims have not been sufficiently recognized by the general practitioner, that much more could be done if the generalist were to be more attentive to the calls of a suffering woman, and to seek from the specialist such diagnostic aid as he can render. Ophthalmology, laryngology, otology, and dermatology have obtained such acknowledment, and it is hoped that gynæcology will be regarded in the same light.

Certainly, its claims are as broad as the science of medicine, and the scope of its duties wherever exist culture, enlightenment, and a due appreciation of the gentler sex.

Note.—From hurried proof-reading, the following names have been misprinted: Aëtius, Récamier, Museo, Plater, Hilken, Daventer, Æginota, Pitié, Bennet, Guillou, Kœberlé, Grenser.

ECLECTIC DEPARTMENT.

"Carpere et colligere."

Art. I.—Ruptured Uterus. By John C. Hupp, M. D., Wheeling, West Virginia. [From Transactions of the Medical Society of the State of West Virginia; forthcoming.]

Case I.—*Rupture at Full Term Proving Fatal.*—February 24, 1849, 9 o'clock P. M., in Sweeney's Row, North Wheeling, Mrs. John Dean had been many hours in her fourth labor; was despondent, and had grave apprehensions as to the result of her labor; pains frequent and very severe, causing escape of *liquor amnii* shortly after my arrival. Previously, nothing unusual was observed in the character of the pains nor condition nor conduct of the patient. The firm and unyielding cranium was engaged in the superior strait, but contractions were insufficient to compel its passage into the excavation. The rigid os was dilated to a diameter of about two and one-half inches. Subsequent to the flow of waters, contractions were feeble, short, distressing, followed by vomiting, deep moanings, anxiety, and restlessness; extremities cool; surface moist: countenance sunken, sallow, haggard, distressed; abdomen enlarged and lost its characteristic prominence.

Dr. John Frissell, summoned as counseller, arrived at about

11 o'clock P. M. A full anodyne was administered, and repeated at proper intervals, with the purpose of inducing rest, and in the hope of its being followed with contractions more efficient and expulsive. In the accomplishment of these results we were disappointed. Spending the night at the patient's bedside, it was distressing to observe a gradual increase of the untoward symptoms, notwithstanding the employment of anodynes and the liberal use of stimulants.

February 25, 10 o'clock A. M., Dr. W. J. Bates, Sr., joined us as additional adviser.

It was agreed to attempt delivery by perforation. After perforation of the head, and before there was sufficient time to deliver, we were admonished by patient's condition to desist.

At 11 o'clock A. M., about fourteen hours after escape of the *liquor amnii* and cessation of contractions, Mrs. Dean died, undelivered.

A post-mortem was denied. The parturient process progressed naturally before the flow of waters.

Although pains were unusually severe, the patient gave no evidence that she was conscious of any peculiar sensations in the womb or abdomen characterizing rupture.

The part presenting did not recede, and per vaginam there was no hæmorrhage. The stomach rejected its contents, which is not unusual in labor. The abdomen, however, had lost its characteristic prominence and became tensely distended.

Would a post-mortem have revealed, in this case, a ruptured womb, perhaps partial escape of the child, and more or less blood effused into the abdominal cavity? Its history and symptoms force upon the mind this conclusion. But the proximate cause of this woman's death continues wrapt in conjecture.

CASE II.—*Rupture of the Womb and Escape of Hydrocephalic Child into the Abdomen at Full Term of Pregnancy—Perforation of the Head, and Delivery by Version, five days and twelve hours after Rupture, and Escape of Child into the Abdomen—Recovery.*—Case second was Mrs. Jane Thompson, near Dallas, Marshall county, aged 23; spare; rather delicate mother of two children: previous labors easy; had measles during third month of gestation, and arrived at completion of her term. Commencement of labor, morning of October 22, 1861; pains every half hour; waters escaped toward evening; subsequent to this no increase in force or frequency of pains for two and a half days; under care of mother as midwife.

October 24, 4 o'clock P. M., fifty-eight hours after beginning of labor, Dr. Thomas F. Marshman, of Dallas, saw her with occasional pains; os undilated. Eight o'clock P. M., labor active; pains powerfully expulsive without corresponding advancement, continued until about 12 P. M., when, during a most powerful throe, she uttered a wild shriek, and there was cessation of pains, followed with sensations, as she expressed it, like something "gave way," "parted," "tore," "breaking right away." After which, patient, as she alleged, experienced these sensations—viz., "everything moved up"; "came out in her right side"; "stretching of child to its full length in her abdomen." Very distressing fullness and great uneasiness in right hypochondrium and upper part of abdomen, followed with smothering, fainting, anxiety, restlessness, great thirst, retching, hiccough.

A tumor, the size of an orange, circumscribed on side next to median line, at a point about two inches above and to right of umbilicus appeared immediately, attracting the attention of patient, physician, and bystanders. In region of tumor, great uneasiness and distress. Slight pressure on tumor intensified these feelings, excited sickness of stomach, smothering, fainting.

I met Dr. Marshman at Mrs. Thompson's bedside, October 26, at 4 P. M., about forty hours after rupture. Found patient's condition as first described; occasional hiccough, regurgitation at longer or shorter intervals; pulse very rapid, feeble; skin cool, clammy; countenance haggard, anxious, pinched, sunken, approaching the hippocratic; respiration thoracic, suppressed, hurried; cheeks tinged with deep purple; tongue moist, furred, yellowish, broad, flabby; abdomen greatly enlarged, tense, tympanitic, very painful on slight pressure, especially over the epigastrium and both iliac regions. By palpation, the irregular, falciform, sensitively tender edge of the uterine rupture was, through the abdominal parietes, very *distinctly* traced, extending from near the pubis to a point in the epigastric region, about two inches above umbilicus and on the right of the linea alba. Above and near the termination of this ruptured edge, and about two inches below the right costal cartilages, the knee and thigh of the child were very distinctly felt through the abdominal parietes. The child occupied the right hypochondriac and iliac regions, its buttocks under the mother's right ribs, its back looking to her right side.

Vaginal examination—external parts much swollen, very sensitive; a fœtid sero-sanguinolent discharge, mingled with small, dark, semi-decomposed coägula issued from vulva, dried about the parts, stained the clothing, rendered the atmosphere of the chamber offensive; vagina slightly, if any, elongated, swollen, tender, doughy; recession *not* beyond touch of os uteri and presenting part of child! In the apparently dying patient before me, diagnosis was not difficult. I had *indubitable* evidence of complete rupture of the womb and escape of child into the peritoneal cavity!

Rupture of the uterus has always been regarded, without doubt, as one of the most appalling accidents that can complicate labor—an accident of acknowledged great fatality—formerly regarded as so necessarily fatal, that it was considered most humane to let the patient alone. And even to this day an impression prevails with many that it is of very little use to do anything for the patient, inasmuch as she must almost necessarily die.

As to the result of Mrs. Thomson's case—with a child lying amongst her abdominal viscera for more than forty hours, and with symptoms as first described—I am very frank to acknowledge that a similar opinion then and there possessed my mind.

I had read as I read fiction, and with an intuitive disbelief, that "a woman of Toulouse had rupture of her womb during the pains of a very tedious labor"; that the "fœtus passed into the abdomen, and remained there for twenty-five years"; that "*after her death* the fœtus was found invested in false membranes," and that "*the rent* by which it had escaped was distinctly visible." I had the impression that certain death must result to the mother, in a few minutes, or, at farthest, in a few hours after rupture, when the child had escaped into the abdomen.

This impression was due in part to the great variety of sentiment, as well as contrariety, amongst those who are regarded as of standard authority.

"By men of equally high reputation, we are advised to abandon to nature and to practice version or gastrotomy in case of rupture and escape of the fœtus" into the abdomen. In connection with my friend, Dr. Marshman, I now had in actual charge a case, in the treatment of which there is no established rule of practice, if even actually present on the spot at the time of the accident. I had been taught that interference must be judicious; that delay may compromise the patient's existence, and that improper interference may hasten the fatal end. In this case, the time for proper interference had elapsed.

Our patient had all the symptoms indicative of impending actual collapse. The process of delivery determined upon was per *vias naturales.* We were sufficiently acquainted with midwifery to form some idea of the difficulties that would very likely be experienced in effecting delivery without the assistance of uterine contractions.

We were not unmindful of the facts as taught; that the hand must pass through the uterine rent *into* the abdomen, grope about among the intestines until a lower extremity is grasped; version accomplished; the child drawn *through the rent* into the pelvis, and then, perhaps, the very tedious and difficult operation of perforating the head *behind the ear* and removing the contents of the cranium—or that, perhaps, the bis-acromial diameter of the shoulders may engage in the short diameter of the pelvis, producing great embarrassment. Could our unfortunate patient, in her now almost collapsed state, survive the necessary manipulations, the fatigue, the exhaustion of so prolonged an operation? We thought not, and resolved to wait the operation of circumstances. At the same time we also resolved to press the use of stimulants and anodynes in the hope of effecting the desired reäction.

It is proper to state here that Dr. Marshman had constantly administered, in person, to this unfortunate woman ever since her terrible injury. Otherwise doubtless she would have actually collapsed, or, most likely, have succumbed.

Patient's bowels had not been evacuated during the last five days. A scruple of calomel was administered, and in six hours a half scruple-dose was given with the double purpose of producing an alvine dejection and modifying reäction—also doses of ergot to arrest further flow from the rupture and from the broken utero-placental vessels, which we apprehended was still being effused into the abdomen, together with brandy, opium and ammonia.

October 27th.—General condition unchanged; hiccough and regurgitation less frequent; an enema caused evacuation of a large quantity of hardened fæces; urine abundant; treatment continued.

October 28th.—Great depression; regurgitation very frequent, on which account the stimulants could not be given regularly, and at times had been suspended for hours; same treatment continued, adding light fomentations over the abdomen and nutrition per rectum.

October 29th.—Nothing favorable, except bowels were evacuated and urine frely passed twice during previous night; hiccough and regurgitation very troublesome; skin cold; perspiration profuse; apparently sinking rapidly. There now seemed very little, if any grounds for hope. Delivery was the great desideratum. But humanity dictated that patient should be left to die undisturbed.

We, with diffidence and delicacy, communicated to the patient and friends what, as we conceived, must result in the absence of reäction. We asked and obtained permission to make a post-mortem in the event of death!! Thus candidly and frankly expressing our doubts and fears as to the prospective result, we at the same time determined not to abandon our patient.

It was agreed to push the use of stimulants and restoratives with a persistence commensurate with the exigencies of the case. With a resolute endurance and heroism befitting the occasion, Dr. Marshman volunteered a continuance of his services, in person, in the execution of the plan agreed upon. I left, promising to return on the morrow. In the meantime I availed myself of the services of an artist, in the expectation of a post-mortem! I also invited Dr. John Frissell, of Wheeling, and the physicians of Triadelphia, to meet Dr. Marshman and myself at the patient's residence on the 30th at 12 M., and be present at the contemplated post-mortem.

October 30, 12 *M.*—To my astonishment and joy, I found patient living, composed, resigned, feeling stronger; abdomen very tense, greatly distended; pulse about 140, feeble; skin moist, comparatively warm; moist tongue; cherry or rather purplish flush on cheeks. Reäction was partial; but we hailed this as the auspicious moment to attempt delivery. Under these circumstances of peculiar difficulty, we adhered to the plan originally agreed upon—delivery per *vias naturales*—as presenting the greatest probability of a favorable issue.

It was needless to speak to the patient and friends as to the certainty of a fatal termination, if the woman remained undelivered. But we reminded them that the operation proposed and about to be performed, was one of great hazard and great difficulty, affording, if any, only a bare chance of a successful termination.

With these stern facts before the friends, they readily and in sadness acquiesced in our doing whatever was deemed advisable. Without other preparation of the patient than the free use of brandy, which also was given as liberally as possible during the operation, assisted by Dr. Thomas F. Marshman and the artist, Emil Bott, Esq., I promptly delivered by version, after giving egress to the aqueous contents of an enormously distended hydropical cranium.

The hand had alarmingly free access to *all parts* of the abdominal cavity. The feet, hidden amongst the bowels, were cautiously found, carefully brought down, and delivery effected by unusually easy version. Less than eight minutes were occupied from beginning to completion of the operation.

The child was a male, weighed eight pounds, was naturally developed, except its hydrocephalic abnormity. Both child and secundines were softened by decomposition, and emitted offensive odor. The latter, dark and easily broken, is well represented by the artist in the engraving shown on the following page, from a drawing taken on the spot.

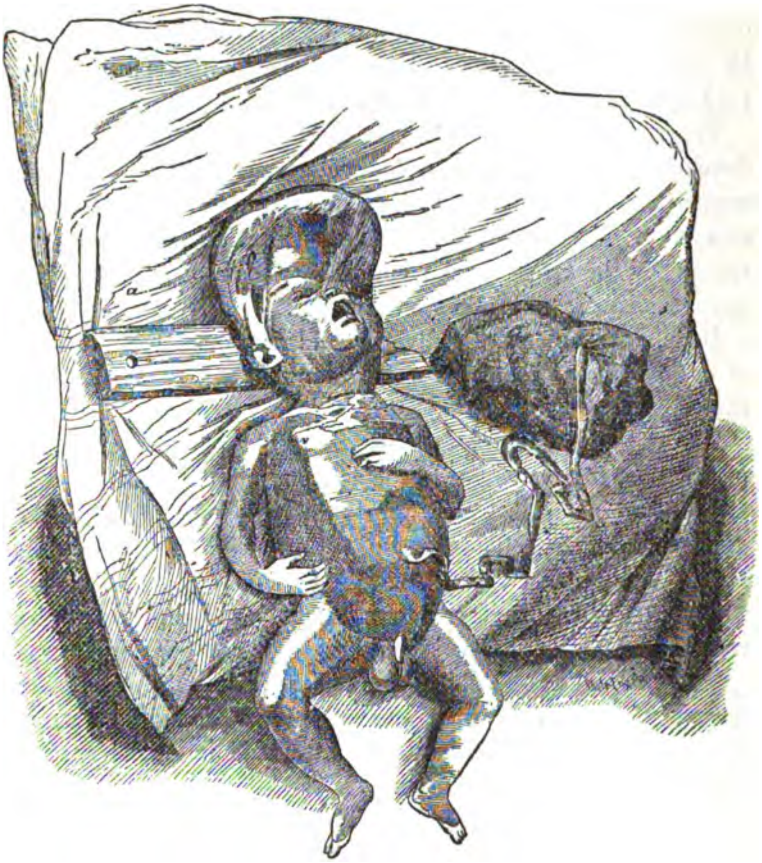
During the process of delivery, child was completely denuded of cuticle, except about the neck, soles and palms, as correctly shown.

Through the opening (*a*) over the right parietal, made by perforation, to give egress to the aqueous cranial contents, the frontal and parietal bones, here exhibited, were picked, after delivery, from the collapsed scalp, within which they were lying nearly detached.

The uterus was ruptured longitudinally and anteriorly; the rent extended from cervix to fundus. The ruptured organ was *spread out*, and not unlike, in size and shape, to a breakfast plate bottom up, and a narrow rim curved upward around its margin. Spread out thus, it was rigidly contracted; its plane surface was irregular, warped, and twisted.

Directed by the long and undivided cord, the placenta was found amongst the bowels, surrounded by coägula. After delivering the placenta, the hand was returned and the coägula very carefully scooped from among the bowels on to the spread-out uterine plane, thence removed in front of the retreating hand! No intestinal loops or folds were left encroaching upon the uterine plane.

Before perforation, the immense hydropical head rested upon the right edge of this uterine plane, depressed that margin and caused its left edge to be elevated against the abdominal parietes, through which it was so plainly and unmistakably felt, as first described. Hence, is explained the non-retraction beyond the reach of touch of the child's presenting part, and hence, also is explained the very slight elongation of vagina. Retraction of a normal child, if its escape be total, necessarily follows rupture. Elongation of vagina follows rupture and partial escape of such child, if it be not *impacted* previous to rupture.



Now, in this case, both rupture and escape were very complete; but insufficiency in capacity of the abdominal cavity did not allow this child, with its immense head, to recede beyond the reach of touch.

For ten days after delivery I saw Mrs. Thompson occasionally, during which time the temperature of her surface was unnaturally low.

After-treatment—cleanliness, profound rest and quietude; potass. chlorat., brandy, anodynes (old opium pills), tinct. verat. virid., as indicated, and light nutritious diet.

The constant vaginal discharge was profuse, literally flooding the bedding whenever patient's position was changed; was at first serous in character, dark brown, intermingled with dark flocculi, giving a brownish muddy stain to linen. Subsequently it became light brown or yellowish, muco-serous; then sanguino-milky in character, emitting in all these various phases a most offensive odor. This discharge very gradually decreased in quantity, became muco-serous, and at length lost its offensiveness.

Three days after delivery, the tympany having subsided, on inspection there was seen, palpably, a circular depression in the abdominal walls three inches in diameter, its centre being in linea alba about midway between the symphysis pubis and umbilicus. This depression very gradually diminishing in its diameters, sharply defined the shape and size of the uterine rupture.

On the tenth day, the abdomen being less tender and free from the distension through its parietes, a circular opening in the anterior portion of the womb nearly three inches in diameter, also the bowl-like edges of the opening in the uterine walls about one-half inch in thickness, were distinctly and accurately felt, when gently pressing with the hand over the abdomen. The extreme general emaciation and consequent thinning of the abdominal walls afforded favorable opportunity to note from time to time the very gradual diminution in size of the uterus itself, and consequent closure of this circular uterine opening, which was not completely closed until about the twenty-first day after delivery.

After a fortnight of quietude, bowels were evacuated by enema.

It is worthy of mention that tenderness of the gums occurred in the meantime from the calomel administered in the outset, which, doubtless, had a modifying influence over surgical fever, and in averting impending fatal inflammation.

At no time after delivery was there any evidence of the secretion of milk. Patient was confined to her bed and chamber for about four months. Her sickness was followed by the extremest emaciation, and the total loss of her hair.

The above cut was engraved from patient's photograph, taken eight months after the accident.

At the time of delivery, there had elapsed eight days and six hours after commencement of labor, and there had elapsed five days and twelve hours after rupture of the womb and escape of the child into the abdomen!

April 27, 1872, I elicited from Mrs. Thompson the following, viz.: First appearance of catamenia about close of fourth month after rupture; have appeared with uniform regularity; at her period nothing experienced different from similar conditions prior to rupture. Since the accident she has been unable to lie on her left side on account of "feeling like there was something grown fast," producing "a drawing" and "cramp-like feeling" in her right iliac and hypochondriac regions; otherwise has enjoyed ordinary health. Since rupture, marital relations have ceased.

By examination per vaginam, I found *remnant* of posterior lip of the os about the size and shape of a small cherry on the floor of the vagina. Two-thirds of the posterior lip and the whole of the anterior lip, together with the entire cervix, were absent. Immediately above the *small remnant* of the posterior lip and upon the vaginal floor, there existed a transverse fissure about a half inch in depth and two inches in length. In the extreme left of this fissure was detected the uterine outlet. A moderately firm band, reaching from the vesico-vaginal septum to the left extremity of the fissure, contributed a large share toward occasioning the existing shortening of the vagina, also toward the narrowing of its upper portion, which was indurated and inelastic. The use of the speculum gave ocular demonstration of the conditions as described. The use of the sound was not attempted.

Mrs. Thompson again expressed her willingness for a post-mortem, that her cloven womb may be obtained and preserved as a rare pathological specimen. She now resides with her father, Matthew Marsh, Esq., an intelligent and highly respected citizen of Marshall county.

In eleven hundred and thirty labors under my care, two cases of rupture of the womb have occurred, equal to one case in five hundred and sixty-five labors.

Cremation in Germany.—Cremation makes progress in Germany. Eighty-two cities now possess cremation societies. The one at Berlin has received intelligence that the new furnace invented for the combustion of bodies by Professors Reclam and Siemens was tested on the 3d of August, and completely satisfied its constructor. Two hundred weight of animal carcass were consumed in an hour and a half—reduced to white ashes, at no more than three shillings' outlay. During the process no sound or smell was appreciable. Solving as it does the question of cremation, Messrs. Reclam and Siemens' contrivance has just met with a rival in the device of Dr. Steinbeis, President of the Central Institute for Trade and Industry at Wurtemberg. He proposes that the corpse should be placed in a trough made of cement, and be filled up with liquid cement, so as completely to cover the dead body. The cement soon hardens and absorbs all moisture from the body—converts it, in fact, into a preservable mummy at small expense and trouble. As sson as the cement hardens, the square coffins may be piled one upon the other like blocks of stone. The furnace, however, seems to possess the superior recommendation of reducing the body to much smaller bulk.—*London Lancet.*

Ante-Mortem Cremation.—A young lady had been ill some time, and her sapient advisers decided she had Bright's disease, for which they prescribed a *turpentine vapor bath.* The bath was administered under the supervision of two irregular practitioners in the following manner: The patient having had the clothing removed, and been enveloped in blankets, was placed upon a chair with a hole in the seat. Beneath her was suspended a tin vessel containing the turpentine, and under it was placed a spirit lamp. The chair was covered with blankets and the lamp lighted. In a few minutes the patient sprang from the chair, exclaiming that she was on fire; simultaneously an explosion occurred, disseminating the ignited fluid about the chamber. The young lady was terribly burned in the region of the nates and thighs. She suffered excruciating agony during the three succeeding days, when death relieved her. The authors of her sufferings stated that they regretted exceedingly the unfortunate accident (!!); that it was an experiment they had never before tried, but from which they had hoped good results; that the small quantity of vapor with which she had contact, had *already greatly benefitted her kidneys;* and that the accident did not materially affect the result, since her case was hopeless.—*Med. and Surg. Reporter.*

The Sarcotome.—Dr. Hollis, of St. Bartholomew's Hospital, on the 8th August, exhibited at the Clinical Society an ingenious little instrument, to which he has given the above name, and which appears worthy of special attention. It is constructed with the view of cutting through the soft tissues of the body painlessly, and consists essentially in substituting, as a cutting apparatus, a waxed thread tightened by a spiral steel spring for the caoutchouc tubing which has hitherto acted as the elastic ligature. The spring is confined in a small metal tube closed at one end, and wormed as a screw at the other, in order to receive exterally a ring. A short cylinder sliding over the metal tube is fixed to one end of the spring by means of a screw passing through longitudinal slits in the sides of the tube. Lastly, a metal cap fits on the closed extremity of the tube, and the free end of the cap is formed into a ring of metal, so arranged that one opening is terminal and the other lateral. When arranged for use, the free extremity of the spring is forced against the closed end of the tube by means of the sliding cylinder. A waxed thread or other ligature is placed around the parts to be severed; the surgeon then passes the ends of the ligature through the terminal opening of the cap and out at the lateral one, and fastens the ends by a screw-nut fixed on the outside of the cylinder. The spring is next released by removing the ring, and its whole pressure is then exerted upon the ligature. The instrument exhibited at the Society weighed less than 1½ oz., was about 3 inches in length, and capable of exerting a pressure of 11 pounds. The inventor claims for the sarcotome many advantages over the elastic ligature, inasmuch as the instrument can be used with any form of ligature, thus diminishing the risk of breakage. A constant known pressure may be kept up for any length of time by occasionally reädjusting the ligature, and in the few cases in which it has been used by Mr. Callender the operations were absolutely painless. The weight of pressure is indicated by a graduated scale on the inner cylinder.—*London Lancet.*

Removal of Both Ovaries.—Mr. C. G. Wheelhouse, Surgeon to the General Infirmary at Leeds, reports that it has once fallen to his lot, on removing an ovary in the case of a young lady aged 19, to find that the other one was also in a state of incipient disease. This he removed at the same time, and thus perfectly unsexed his patient.

"It is three years ago this month since the operation was performed, and I have watched the case ever since with the greatest anxiety. There has never been any attempt at menstruation, nor has any vicarious discharge ever taken the place of the natural one; but, beyond this, I see no change of any kind. The general health is now as perfect as it ever was, and, so far from any uncomfortable symptoms of masculinity having occurred, the voice remains as soft, the bust as full, and the whole aspect and demeanor are as perfectly feminine as in any other young lady of my acquaintance."—*Brit. Med. Jour.*

ANALYTICAL DEPARTMENT.

"Qui e nuce nucleum esse vult, frangit nucem."—PLAUTUS.

ANALYSES OF INTERESTING CASES. By R. C. BRANDEIS, M. D., LOUISVILLE, KY.

Mr. W. Stephenson ("Edinburgh Medical Journal,") has recently reported two interesting cases of laryngeal abscess. The first case was seen in a child, aged four years, which had recovered from scarlatina three weeks before. At the autopsy a small abscess was found on the outer surface of the right half of the thyroid cartilage, which exposed the superior border of the cartilage extending to the cornua superiora, and opened within. Death ensued, after respiration had again been perfectly restored, in consequence of pneumonia in the upper lobe of the left lung. In the second case an abscess was discovered in a child aged two years, which had recently recovered from an attack of small-pox, immediately above the thyroid cartilage, which was opened without delay. The respiration, however, remained impaired, and the child died from marasmus. On the anterior surface of the cartilage a sac, containing pus, was found which extended right and left in the direction of the cornua of the cartilage, which, though exposed, showed no signs of necrosis.

In addition to these, Stephenson relates a case, resulting in recovery, in which the trachea was compressed and dislocated by an abscess which was subsequently evacuated. He also calls attention to the differential symptoms in membranous croup and laryngeal abscess, and the similarity of the latter and retropharyngeal abscess. 1. As in this last affection the laryngeal symptoms made their appearance much later in the course of the disease than in croup. 2. Deglutition was painful and difficult, and increased the dyspnœa. 3. The children sat upright in a horizontal position, increasing the difficulty of respiration. 4. The cough was rough, but not metallic. The laryngoscope was not used, owing to the tender age of the patient.

An article on the affections of the throat and larynx without any pathologico-anatomical changes has recently been published by Dr. Hermann Klemmer ("Deutsche Klinik," 1874). The peculiarity of these is the impairment of the voice, and of deglutition. The patients complain of pressure, pricking, a sensation of choking, of a foreign body, and dryness of the throat. The voice is occasionally aphonic (!) and rough, while no changes are to be noticed on the mucous membrane of the pharynx or larynx. This condition is noticed more often in females, and, though not so frequently, is still seen often enough in male subjects. Very often a mental cause is discovered, occasionally it is due to a bronchial or pulmonary catarrh, without any complication of the laryngeal mucous membrane or antecedent pharyngitis or laryngitis; in other cases a hereditary tendency to this group of symptoms may be discovered. Treatment is very tedious and difficult. Should any changes in the mucous tissues be observable, cauterization, with a strong solution of nitrate of silver is indicated, if not, we should use a weak solution (five grains to half an ounce of water) of the nitrate or applications of chloroform with glycerin, morphine with mucilage (three grains to two-fourths of a drachm); should these fail, electricity may be applied. Change of air is the sovereign remedy, and should be strongly recommended.

ORIGINAL CORRESPONDENCE.

"Sit mihi Fas scribere audita."

London, August, 1874.

Dr. E. S. Gaillard, Editor Richmond
and Louisville Medical Journal:

Dear Sir,—The termination of the season of this great medical centre is now near at hand; it has been characterized by quite a full attendance of pupils at each of the eleven medical schools, and so far as I have been able to judge, I have never seen a more orderly or studious corps of pupils; their minds having been previously well trained at Oxford or Cambridge, it is with but little effort on their part to possess the application of study so necessary to bring them successfully through the examinations for their degrees, after the four years of medical chrysaloid state; unlike our American medical pupils, they are much given to athletic sports, which keep the physical at par with the mental, and better fits them for a longer period of collegiate life.

A medical man visiting London naturally expects to find something new, some advancement in the science. In this there is much disappointment, for the English medical profession, characteristic of the national temperament, are in themselves not progressive as a general rule, but their fort lies in digesting, and assimilating, to use those theories and proposed improvements of other schools, especially the German and French, and after any subject has been refined or acted upon, which they do in the most painstaking manner, such is their honesty of purpose, as well as word, that their experience may be accepted with implicit confidence. They much act in obedience to the old adage of "letting well enough alone," and are quite loth to adopt new fashions in medicine or surgery, until they are put to the crucial test of experience. One of the grains of wheat which has been winnowed from the surgical chaff is the proper estimate which is now put on torsion as a means of controlling hæmorrhage; in my humble opinion it has been satisfactorily proven that there is not a safer method, and one which interferes less with the reparative process of wounds; having been revived of late years by Mr. Thomas Bryant, of Guy's Hospital, it has come into general practice not only in the hospital with which he is connected but throughout London. I have had opportunities of watching patients after hæmorrhage had been controlled by this method, and have never observed an unfavorable sequence, and I have such high authority as Messrs. Maccormac and Sydney Jones, of St. Thomas' Hospital, for saying that there is equal safety from secondary hæmorrhage as by the ligature, who have frequently seen the femoral artery torsionized without any untoward result. Of course atheromatous or calcareous degeneration of the arterial structure contravenes its use.

Another comparatively new item which has been well tested, is the "bloodless operation" by means of the elastic bandage; it has now through experience been assigned its appropriate place in the surgical art; it is conceded to be appropriate in operations on the extremities, where there is not a large suppurating surface; the theory is advanced as to the greater liability to sloughing of flaps after amputation by this method, but the correctness of it is not borne out by the experience of the leading London surgeons.

There is here as much difference of choice in anæsthetics as exists in the United. I believe though that upon the whole chloroform is more generally used, though it has some strong opponents. Chloromethyl is quite a favorite with not a few; amongst its advocates may be mentioned no less an authority than Mr. Spencer Wells, who uses it to the exclusion of all other anæsthetics; he claims for it, as might have been seen from his work on "Diseases of the Ovaries," that it is safer than chloroform, is not so often followed by nausea, is quicker in its effect, and the state of anæsthesia is more placid, it being rarely ever accompanied by those violent demonstrations which have been seen to often ensue in chloroformism; he has it administered by Juncker's inhaler, which also is a most excellent one for chloroform. Chloromethyl is again the favorite at the Royal London Ophthalmic Hospital, the largest institution of the kind here. Mr. Buller, the house-surgeon, tells me he has administered it numbers of times without an unfavorable occurrence. Sir Henry Thompson prefers to have his patients anæsthetized by first administering nitrous oxide until complete unconsciousness is produced, then for the effect to be kept up with ether; this is by far the most rapid method I have ever seen, in fact the rapidity is remarkable; the inhaler used is quite an ingenious one, introduced by Mr. Clover, a London surgeon; it has in it compartments for each anæsthetic, their exit being controlled by a valvular arrangement too complicated to be described in such a communication as this. I am satisfied Clover's inhaler in the course of time will come into general hospital use, but it is too large and cumbersome for private practice, for which I prefer Junckers. Ether is but little used here, its safety is admitted by all, but the length of time it takes to display its effect, the great excitement which is produced in the second stage, and the intense nausea which follows and is so persistent are the combined reasons for its non-use. Nitrite of amyl can scarcely be called an anæsthetic, but is much used here, especially in the paroxysms of asthma and angina pectoris. In the latter affection I saw its beneficial effects remarkably displayed in a case of Dr. Murchison's, which was complicated with aortic stenosis and mitral insufficiency; relief was almost invariably obtained in a few seconds after its administration. I may remark, with some degree of facetiousness, that since my sojourn in London there has seemed to have been almost an epidemic of ovarian tumors with operations therefor; one might see on the bulletin of the hospitals on most any operating day, a notice of an operation for ovariotomy; it has been my good fortune to have seen Mr. Wells perform this operation many times, which he does in the most dexterous but carful manner possible. If the same amount of prudence, caution and strict attention to hygiene were exercised by other operators, the death rate would be reduced to a lower percentage. It will not be *mal apropos* whilst speaking of this operation to mention that I have, with some little pains, followed out many cases of ovariotomy, and my observations accord with the experience of Dr. Marion Sims, that the greatest tendency to death is from septicæmia, and in my most humble opinion, the sooner the drainage system advocated by him is adopted the surer good results will be obtained. At present, no ovariotomist in England, to my knowledge, uses this method. At the risk of being considered tedious, I will mention a singular fact which has come under my observation in connection with the operation in question—viz., that the more complicated the case (i. e., extensive adhesions, short pedicle, etc., etc.,) the more favorable the results. As a proof of it, I witnessed about three months ago an operation of Mr. Wells in which the attempts at enucleating the tumor were met with great resistance from strong adhesive bands, which had to be almost ripped asunder, and coming down to the pedicle, it was found to have been so intimately connected with the uterus, that the latter was made a part of it, and excised just above the internal os and the clamp applied. This case made quite a speedy recovery, whilst one in the next bed, who had been operated on a day or two previous, and with whom everything had gone on smoothly as possible, died a few days after the operation.

In the branch of gynæcology, there is much to be gleaned here, especially by one who follows that excellent gentleman and skilled operator, Dr. Barnes, through his wards, whose originality of thought is only excelled by his sound judgment and cunning hand. His patients being judiciously selected by the resident accoucheur, he nearly always has his wards filled with interesting cases, amongst which there has, latterly, been quite a number of uterine tumors and uterine cauliflower excrescences, which he excised by means of the galvanic cautery, the results being quite satisfactory.

I may also mention Dr. Meadows' clinics as being amongst the most interesting and important ones here. He, like Dr. Barnes, is careful in the selection of cases. His clinic of late has been noted for operations for vesico-vaginal fistula, ovariotomy, and many minor operations, such as incising the os internum and cervix uteri.

Dr. Graily Hewitt's clinic is often attended by visitors. Whilst there, recently, I witnessed quite a number of cases of acute ante-version of the uterus. Of five patients in the ward, each one was diagnosed to have been affected as before mentioned. On the same visit he very skillfully performed elytrorrhaphy for *procidentia uteri.*

It is quite remarkable the success which surgeons here have in lithotomy and lithotrity. I can only account for it by their making the nice distinction as to the nature of the operation required for each individual case; but, as a rule, I believe Sir Henry Thompson's advice of *cutting* the *young* and *crushing* the *old* is followed *cæteris paribus.* I have recently seen quite an interesting case of lithotomy in the practice of Mr. Savory, of St. Bartholomew's Hospital; interesting by reason of his having been operated on three times previously; this last making the fourth. I learned, ten days afterward, he had every prospect of recovery. Another singular case occurred under Mr. Sydney Jones, of St. Thomas', who extracted, by means of lithotomy, a very large dumb-bell calculus, the weight of which I have now forgotten, but it was extraordinarily large.

Very good success is obtained here from excision of the knee, though there is quite a difference of opinion as regards the after-treatment. However, I believe the larger number adopt the fixed position of the limb, rendered so by plaster of Paris bandage.

I can not close this communication without adding my admiration to all of those who have the good fortune to attend the medical clinic of the celebrated Dr. Murchison. As a clinical teacher, I much doubt if he is excelled, and but rarely equaled. His clinic, I presume, is the largest in London, unless it be Mr. Hutchinson's, of the London Hospital.

With this, I close, asking pardon if I have too much trespassed upon the valuable space in your Journal.

Very truly yours, E. P. Sale, M. D.,
Aberdeen, Miss.

Vienna, August 12, 1874.

Editor Richmond and Louisville Medical Journal:

Dear Sir,—To-day I visited the K. K. public Hospital of Vienna. I was only in the wards of Docent Dr. Firber, who is at present absent from the city, as are all the other lecturers. Dr. Firber treats and lectures on diseases of the throat and lungs, and nervous disorders.

This morning the assistants of Dr. Firber held a poly-clinic, the ambulanten-klinik called here. I saw about thirty different cases of diseases of the larynx, which were treated in the ward by one of the assistants, according to the merits of each case, by caustics, inflation and electricity. In the same ward there are twenty-two beds, nearly all occupied by paralytic women, with the exception of one or two; they are all treated by electricity, baths and diet.

Dr. Wilholm, one of the assistant physicians, asked me to examine the lungs of one of the women, who complained about painful stitches in the inferior dorsal region of the right lung. Another of the assistants had diagnosed hypostatic pneumonia. I found only a very slight congestion in that part, hardly worth mentioning. Dr. Wilholm said that I was right. They generally look down, here and everywhere in Europe, upon American physicians; but I intend to show them, before I leave, that an American can be as good a physician as any of the Europeans.

The hospital is a very large building. It has at present 100 wards (59 for men, 41 for women), with 2,000 beds, which are arranged as follows, viz:

Internal diseases, 407 for men and 280 for women, 687; chirurgical cases, 314 for men and 205 for women, 519; diseases of the eye, 85 for men and 75 for women, 160; diseases of the ear, 11 for men and 8 for women, 19; venereal diseases, 222 for men and 99 for women, 321; cutaneous diseases, 89 for men and 49 for women, 138; reserve for cholera patients, 10 for men and 8 for women, 18; reserve for variolous cases, 14 for men and 12 for women, 26; extra paying patients, 17 for men and 14 for women, 31; for students, 20. In all 1,228 for men, and 772 for women.

The hospital was thrown open to the public on Monday, August 16, 1784, about 90 years ago, by Emperor Joseph II. The buildings were originally the great Vienna poor house, commenced under the government of Emperor Leopold I., 1693 and finished in 1769. Under the government of Emperor Francis I., an addition was made to the buildings from 1832 to 1834, and another in 1862, the building for pathological anatomy.

The different buildings of the hospital are divided by large yards, ornamented with flowers, bushes and trees, whereby the air is purified, which is very necessary, as the hospital is surrounded with large buildings, which of course would make the air unhealthy by the congregation of many people; but which is happily avoided by the dispersement of large gardens between the different buildings.

Besides this hospital there are two other public ones in the city, under the direction of the K. K. Public Hospital, viz: the K. K. Bezerks-Kraukenhaus Wirden, which has 600 beds, and the Rudolph Stiftung, with 860 beds.

The K. K. Public Hospital serves for the purpose of instruction in the different branches of medicine. During the summer course of 1873, there lectured in this hospital 20 professors, 25 private docenten, and 16 assistants.

Only persons of five years and upwards of both sexes are taken care of in this hospital. Infants and children to the fourth year inclusive, are received in the St. Ann Hospital for children, under the direction of the K. K. Public Hospital. More anon. D.

PROCEEDINGS OF SOCIETIES.

"Etsi non prosunt singula, juncta juvant."

Central Kentucky Medical Association.

The Association held its sixteenth regular meeting at Harrodsburg, Ky., July 15, 1874, in the Good Templars' Hall, at 10 o'clock A. M., the Vice-President, Dr. A. D. Price, in the chair. Present, Drs. S. L. S. Smith, U. S. A., Frazee, Gaither, Dunlap, Bailey, Burdett, H. Brown, W. A. Brown, Meyer, Harlan, C. H. Spilman, Huffman, Alcorn, Grinstead, McMurtry, J. S. Warren, Stevenson, Willis, and Erwin.

The debate was opened by Dr. Dunlap, of Danville, with a paper on Cholera, the question for the day.

After giving a history of cholera and the course and progress of the various epidemics of that disease, together with some of the most prominent theories as to its nature, cause, and propagation, and discussing its contagiousness, which he denied, quoting from high medical authorities in support of his position, he admitted its portability, and said "the diagnosis of cholera is generally easily made out. In a majority of cases the diarrhœa precedes the vomiting several hours. The dejections are of a serous character, rice-colored, painless, and without the natural fæcal odor, the shrunken features and eyes in a few hours, then cramps in the calves of the legs, afterwards extending over the body, great thirst, the patient becoming rapidly pulseless at the wrist, are sure indications of the disease, making the diagnosis unmistakable."

Of the pathology of cholera, little, he said, is definitely known. Numerous observations have failed to throw much light on the subject. After giving the pathological appearances, as noticed by Niemeyer and others, he said there is one noteworthy condition connected with the disease frequently observed—viz., the rise of temperature after death, which often reaches 102° and 106°, whilst before death it may be as low as 90° or less. The treatment, he said, must depend upon the character of the poison, the suddenness of the attack, as well as the pathology. The rule is that diarrhœa, called by some cholerine, precedes the more violent symptoms. There are cases on record where the patient was suddenly stricken down and died without diarrhœa, but the post-mortem showed the characteristic rice-water discharges. If it is a blood disease, whether primarily by direct inhalation of the poison, or secondarily by absorption of the characteristic poison from the alimentary canal, the treatment must still be, in one sense, eliminative, but not purgative. The remedies must be administered with the design of so altering the secretions as to arrest the profuse serous drain, and to prevent that inspissated condition of the blood which, rendering its circulation in the capillaries impossible, results in cyanosis, asphyxia, and death. If this condition be the result, as has been stated, of spasmodic action of the muscular coat of the capillaries, atropia, hypodermically, may relax the contracted vessels, especially in the lungs, and thus relieve the asphyxia.

During the epidemic of '49, of which he gave his experience, the remedies most relied on were opium, calomel, and the acetate of lead, and he knew of none better now. It was a noticeable fact, he said, that in every instance where the color of the dejections was changed to that of the bile, accompanied by the natural fæcal odor, the patient recovered. Notwithstanding the laudatory notices of the action of atropia in the epidemics of last year, he thought it had failed, because other agents had not been used with it. Had calomel, opium, and acetate of lead been given in connection with the atropia, he believed better results would have followed. Dil. sulph. acid and quinine as prophylactics he thought worthy of trial. They could, at least, do no harm. In conclusion, he advocated in strong terms preventive means as the best, the enforcement of sanitary regulations, the liberal use of disinfectants, prophylactics, etc., etc., urging upon the Profession the duty of laboring to impress the laity with the importance and necessity of these things, and the observance of the laws of hygiene as by far the most trustworthy means of combatting the fearful scourge.

Dr. Harlan thought Dr. Dunlap had read a very good paper. He dissented, however, from the views advanced as to the contagiousness of cholera. He regarded it as contagious, infectious, and portable; not contagious, though, in the sense that scarlatina and variola are. He advocated temperance in all things, and strict hygiene during the prevalance of an epidemic, and said special attention should be paid to the water used for drinking purposes. The treatment recommended was very good, but be believed that two much reliance on opium, calomel, and acetate of lead would lead to grave error. He looked upon dil. sulph. acid as a reliable remedy as well as a prophylactic. This opinion, he thought, would be sustained by the experience of the recent epidemics. There are some phases of the disease in which the eliminative treatment could be resorted to with great benefit. He knew of no lesion which called for more discrimination and sound judgment.

Dr. Erwin called attention to the remarkable fact which has been observed by high medical authorities, that smelters, near copper works, and those who worked in manufactories where copper and brass are manipulated, almost entirely escaped cholera, while it raged with great virulence about them. Out of 30,000 persons thus employed in Paris and other cities, only 16 fatal cases occurred during an epidemic of this disease.

Dr. C. H. Spilman was very much interested in the paper. It contained, he said, much useful matter. One of the most important points, is to ascertain the nature of the cause of the disease, whether it is local, or general and atmospheric. Some information, he said, may be gained on this point from the manner of attack. The phenomena of cholera attacks will determine. There is nothing in cholera morbus to show that there is an atmospheric cause. In cholera, however, the cause is in the air. In a large majority of cholera cases there are premonitory symptoms. It is impossible, he said, to doubt that during an outbreak of cholera, there is a general epidemic influence; not unfrequently, however, it may require some exciting cause, as intemperance, in diet, or drink, etc., to produce the disease. One of the principal sources of the cause is decaying vegetable or animal matter. In proof of which, he said, most cases are found amongst the poor and badly cared-for classes, and in malarial districts. In the epidemic of 1833 he saw seven individuals stricken down without any premonitory symptoms; no vomiting nor diarrhœa, suddenly becoming cold and pulseless. He believed the proximate cause of cholera consists in a modification of the organic powers and functions by some hidden atmospheric poison. That the modification is general and simultaneous, will appear from the phenomena which distinguish the invasion. These phenomena, however, he said, must be considered in the most simple, uncomplicated form of the disease, not as they occur in those complex cases that may be variously introduced by premonitory symptoms; such as are marked by the most malignant constitutional symptoms, and in which not the slightest evidence of antecedent local disease can be detected, many of whom die within six hours after the attack. And if, in the progress of the disease, one organ is found to sustain more of the burden than another, it is owing to their varying susceptibilities. The combination of phenomena, which is pathognomonic of epidemic cholera, not only implies a general cause, which simultaneously affects the universal body, but offers a sound basis of discrimination between *cholera asphyxia and cholera morbus*, which is manifestly a local disease. All the facts disprove its contagiousness. There is nothing in the phenomena of cholera to show that it is contagious; that its germ is portable; that it may be transported over great distances; that its power of proliferation is immense, and like leaven, with great instantaneousness, often infects large districts, facts leave no room to doubt. But that it is directly communicable from infected to healthy persons is no less contradicted by facts. These facts, which he said he had not time now to detail, are at hand, if any is skeptical on this point. During the epidemic alluded to, he had made a number of post-mortems of cholera cases, and he was struck with the fact that there was not that uniformity in the morbid appearances on dissection which characterized the symptoms, nor anything which could account for the sudden havoc of organic life. This, he said, has greatly embarrassed our pathology, and stamped upon the etiology of the disease great doubt and uncertainty. He would venture to predict that there would never be anything like a specific for cholera. If these views of the proximate cause be sound, he said, it follows that the extreme capillaries, which are endowed in a preëminent degree with the vital properties, are the instruments of the disease, and it is on these organs that he must make an impression in the treatment. Calomel, opium, and camphor present the sum total of efficient remedies; subordinate means, however, should be used. These, he said, consist in the application of dry heat to the surface and extremities, and the various instrumentalities, not only for reëstablishing the secretions, but restoring the action of the skin, and recalling the circulation to the cold extremities. To effect this, friction with stimulating inunction had proven, he said, in his hands of great value.

Dr. H. Brown disbelieved in the contagiousness of cholera.

In the treatment, the great difficulty is to retain the remedies. He had found that dil. sulph. acid was retained better than any other remedy, and its retention soon followed by cessation of diarrhœa and vomiting, and the return of warmth to the surface. He regarded it a reliable remedy in cholera, as well as a prophylactic. His first experience with it was in the epidemic of 1849. He had never tried atropia in this disease, but had every reason to think well of it. In treating cholera, he would rely upon atropia and dil. sulph. acid.

Dr. Meyer said the subject was one of vital interest to the Profession. He thought that it had been demonstrated that cholera was not contagious, whilst there could be no doubt that it is infectious. The cause is due to atmospheric influences, the nature of which is unknown. All the indications in cholera attacks point to the use of calomel and opium. Perfect repose in the recumbent position should be rigidly enforced, with ice-cold applications to the spine; the patient being well covered with blankets, and permitted to drink ice-water at will. Friction, he said, was beneficial when it could be applied, but it was difficult, in most cases, to apply it efficiently. He thought dil. sulph. acid excited a prophylactic action, but recommended the addition of small doses of quinine. Atropia would be useful to allay the nervous irritability.

Dr. Burdett read an extract from Niemeyer in proof of the contagiousness of cholera, and said it is to be regretted that the word contagion had been used in this connection. The difference between the contagiousness, portability, and infectiousness of cholera is inappreciable. It is certainly "catching." He doubted if there ever was a case of "dry" cholera. The poison is in the discharges, either animal, vegetable, or infusorial, and it finds its way into the stomach in some unknown manner, and affects the mucous membrane of the digestive organs. The poison is not in the blood, but in the mucous membrane. Calomel was very good in cholera. He would not give it, however, for its cholagogue effect, but to act on the mucous membrane. He did not believe in the premonitory symptoms of cholera: they are cholera itself. He would give dil. sulph. acid and white of egg and salt-water, as recommended by Professor Bayless, to supply the loss of serum, but could not approve of the eliminative treatment. He had no objection to cold water. The best treatment for cholera, he thought, was *to go off soon enough, far enough, and to stay long enough.* The poison, he said, floated in the air, and during an epidemic every one is more or less affected. He did not think sufficient stress had been laid on the use of disinfectants. Many substances in daily and common use, he said, may possess disinfecting powers. If the discharges from cholera patients were always properly disinfected, burned, or destroyed, the danger of infection would be very greatly lessened.

Dr. Huffman said the theories as to the cause of cholera are innumerable. Its progress is through human intercourse. He believed it could be stamped out easier than any other epidemic, if taken in time, by the enforcement of sanitary laws. After some account of the outbreak in Lancaster last year, he said it was very fatal there. Very few collapsed cases, he thought, ever recover. He had never seen one get well. He did not believe it was ever communicated from the infected to the healthy, direct. During the prevalence of cholera, it is safest to live in elevated situations. Transfusion of milk, he believed, would prove an efficient remedy. He regarded dil. sulph. acid as near a specific as could be. He had great faith in the subcutaneous use of morphia also, and thought the less friction or rubbing the better. Had no confidence in prophylactics. Every person, he said, should pursue his ordinary mode of living during the prevalence of cholera, but specially should strict sanitary regulations be enforced.

Dr. Frazee did not believe cholera contagious. The Lancaster epidemic, he thought, had proved this clearly. In the treatment, he relied mainly upon calomel, opium, and acetate of lead, with ice freely, but with very little water.

Dr. Stevenson had some experience in former epidemics of cholera. The cause, he thought, was general and atmospherical. He had observed, in some localities, that it was very malignant; in others, non-malignant. The first stages were easily managed. His treatment consisted in calomel, opium, and camphor. The most important point, he thought, was to enforce sanitary regulations.

Dr. Taylor thought the subject pretty well exhausted. He would simply allude to the comparative rarity of cholera in China. During a long residence in that country, though there had been two visitations of that disease in that time, in neither instance did it spread far beyond the places in which it first appeared, notwithstanding the Chinese, he said, are notoriously unclean in their habits, and pay no regard to the laws of hygiene. He accounted for their exemption partly, at least, from the fact that the universal drink of Chinese is tea. They have a settled distaste to cold water, he said, and whenever unable to get their favorite drink, the water is boiled and drunk tepid.

Dr. Burdett said the statement made by Dr. Erwin concerning the remarkable exemption of persons living in the vicinity of, and working in copper and brass factories during epidemics of cholera, was worthy of consideration. He was impressed with the belief that there might be something in it. The salts of copper, he said, are virulent poisons, and possibly there is another instance of one poison counteracting the effects of another. After some further particulars of the epidemic at Lancaster, in which he stated that all the cases had occurred in one portion of the town, he said, during the prevalence of the disease at Lexington, it had attacked persons living in the highest situations.

Dr. Frazee thought if cholera were contagious, it would have prevailed in all parts of the town.

Dr. McMurtry mentioned an instance of the portability of cholera coming under his own observation last summer. He was called to see a lady living some miles from the infected region, and who had not been exposed in any way. She was in a state of collapse, and died. After diligent investigation, it was ascertained that a negro boy, fresh from the cholera region, had taken up his abode with the family of the patient. He also related another instance of a party of immigrants coming from an infected district, and upon reaching their destination, in Utah, after weeks of travel, had cholera to break out among them after opening their boxes.

Dr. Harlan thought the discussion about the contagion of cholera unprofitable. He did not think we ought to abandon collapsed cases, however desperate they might seem; he was satisfied there were instances of recovery in this stage; atropia, he said, should be given for its constitutional effect.

Dr. Bailey, Chairman of Section on Progress of Medicine, Physiology and Medical Pathology, read his report. This was an excellent review—full and comprehensive—of the advance made in these branches up to the present time, written in the author's usual attractive style, and evincing patient and faithful labor.

Dr. McMurtry, of Danville, read a report of a case of softening of the brain occurring in a patient; male; twenty-six years of age. The first sympton was loss of power in the left arm and leg, which in the course of a few weeks resulted in complete hemiplegia. This condition, accompanied by violent headache, continued about two months, and was not modified by the treatment, which was tonic and supporting, with a liberal use of anodynes. At the expiration of this time, it was evident that there were extensive intra-cranial lesions by the appearance of the pupils, and the obstinate vomiting. Delirium was not present during the entire course of the disease, and though rather stupid, the patient was intelligible. Coma suddenly occurred, and the case terminated in death. The autopsy disclosed extensive lesions at the summit of the right hemisphere of the brain, near the great longitudinal fissure. The membranes covering this portion of the brain were exhibited. At the seat of the disease the membrane had become attached to the cerebral mass, and when removed, disclosed the brain substance in a softened and disintegrated condition. In the midst of this débris was a clot which had evidently been recently extravasated, and was the immediate cause of the coma and death. The remaining portion of the brain was healthy, and the arterial tunics throughout the body were normal. The vessels in the midst of the softened part having lost their support, the effusion occurred. The case was considered of special interest as illustrating the value of constant and intractable headache, as a symptom of diseased conditions of the cerebral mass, and also that extensive lesions may sometimes occur at the summit of the cerebral hemispheres without any marked symptoms referable to the intellect.

Dr. Taylor read a report of a case of genito-umbilical malformation. The subject of this singular malformation is a male, twenty-six years old, near six feet in height, intelligent, and has always had excellent health. The umbilicus is abnormal in position and development, and the body of the penis entirely wanting. The surface of the abdomen is perfectly smooth, the usual umbilical cicatrix and depression being totally wanting. Just over the symphysis pubis there is a fleshy excrescence about the size of a hen's egg. It is entirely destitute of cuticle, of a highly inflamed appearance, painful to the touch, and is constantly exuding from the whole surface a yellowish, viscid mucus. At the base of the large protuberance there is a line of union with the surrounding natural surface, an irregular circular fold of cuticle partially cicatrized. Immediately at the base of this fleshy excrescence, at its inferior side, is what may perhaps be called a rudimentary penis, having however, only the glans, and that directly connected with the pubic surface by a peduncle, the body of the organ being entirely absent. This glans consists of two distinct lobes, each having on its upper and inner surface a natural orifice—meatus urinarius—through both of which the urine is incessantly and involuntarily discharging, the sphincter vesicæ being either wanting or without voluntary contractile power. Attached to the peduncle of the glans, on its inner side only, and not surrounding it, there are several folds of prepuce, then immediately connected with this is the upper portion of the scrotum. The testicles are normally developed, though rather smaller than at manhood. He has never known the sensation or desire to urinate, but has sexual desire. The incessant and annoying stillicidium rendered it necessary for him to wear cloths to absorb the urine, which, from the constant contact with the raw surface, forced him to wear *skirts*, in order to relieve the pressure of the cloths as much as possible. In this semi-feminine attire he has gone through life, with the exception of a short period, when he attempted to substitute a rubber bag for the cloths, with the hope that he might be able to assume masculine attire entirely, but he was forced to abandon it on account of the increased irritation and inconvenience, and to resume the skirts. He labors as a full hand on a farm, and is quite industrious and thrifty. No other instance of malformation is known to have occurred to the family. His father and mother are distantly related.

Dr. McMurtry thought this a very remarkable and interesting case of malformation, and should be published.

Dr. Huffman was inclined to think it a case of exetrophia; He had seen Dr. Pancoast operate for this malady in one instance, but with negative results.

. Dr. Taylor also read for Dr. Cowan a report of a case of fibroma, and exhibited Dr. Cowan's modification of Squire's Catheter.

Dr. Price read a report of a case of cardiac hypertrophy, with disease of the aortic and mitral valves. The patient, male, aged thirty-three years, had two severe attacks of rheumatism in early childhood, when his heart was pronounced diseased by the attending physician. From this time on he was subject to attacks of rheumatism after exposure to cold; up to a few years back, when he engaged in the livery stable business, he labored on a farm. His health improving, he returned to farming, but before long his health again gave way, and he fell under the care of Dr. Price. He was rather stooped-shouldered; had a pained and anxious expression; muscles hard and well developed, pulse hard and jerking, pulsation in the carotids distinct.

The precordial dullness increased; apex beat extended to the left; its impulse heaving. Auscultation revealed a double aortic murmur, and also a mitral obstructive murmur. It was pronounced a case of cardiac hypertrophy, with disease of the aortic and mitral valves, with unfavorable prognosis, and his condition made known to him. He was then put upon a tonic course of treatment, and advised to abandon farming, avoid all excitement, etc., etc. The symptoms gradually increased in intensity, until he was confined to bed. After this, his sufferings were so acutely painful that morphia subcutaneously only brought temporary relief. The dyspnœa became so distressing as to prevent for hours the recumbent position; the gastric derangement so great that the most delicate and palatable drinks were loathsome to him. Death occurred suddenly, the patient having been under treatment two months and a few days. The heart, weighing twenty-eight ounces, was exhibited. Post-mortem, four hours after death, showed the cavity of the left ventricle dilated, aortic valves ossified and remaining permanently open, with a calcareous deposit on the mitral valve, which gave rise to the pre systolic murmur. Liver enlarged, lungs healthy.

The chief point of interest in the case, was the number of years the man lived, and many of them at hard labor, while suffering with organic disease of the heart, which is popularly believed to be of short duration. In the meantime the patient had lived for at least twenty years thus affected.

Dr. Meyer exhibited a copy of the "American Medical Weekly," published at Louisville, Ky., and, with some complimentary remarks, recommeded it to the patronage of members.

The thanks of the Association were voted the Mercer County Medical Society for an entertainment and other hospitalities, and the Good Templars for the use of their Hall.

The Association adjourned at 5 o'clock P. M., to meet in Standford on the third Wednesday in October next, the debate to be opened then by Dr. Alcorn, of Hustonville, on Dysentery.

GEO. T. ERWIN, M. D., Per. Sec.

CLINICAL RECORDS.

"Ex principiis, nascitur probabilitas: ex factis, vero veritas."

ART. I.—SURGICAL CASE. By S. EAGON, M. D., Jefferson, Texas.

Mr. H., private in Confederate cavalry, aged 24, of vigorous development and in perfect health, while on duty in Mississippi during the autumn of 1863, received a wound from the ball of an army pistol, the missile entering the right lower limb opposite and on the outer side of the knee-joint, traversing the popliteal space and making its exit at a point diametrically opposite that of entrance, the leg being strongly flexed upon the thigh at the moment. Hæmorrhage to syncope followed, the subject of the accident falling unconsciously from his saddle upon the ground. The hæmorrhage (which doubtless had its source in the articular branches of the popliteal artery, which branches could scarcely have escaped division from the course of the ball through the popliteal vessel) was soon arrested by the application of cold water conjoined with elevation of the limb and perfect rest; means intelligently resorted to by the patient himself, there being no surgeon in reach. No complication occurring, the wound healed under simple treatment, with rest, in the course of three weeks, Mr. H. returning to active duty in fifty days from receipt of injury.

At this latter date a small tumor, as estimated by Mr. H., the size of a filbert, could be felt on deep palpation near the centre of the popliteal space, painless, and a source of no inconvenience whatever. Little attention was given to the matter till some time during the autumn of 1868, when some transient pain and stiffening of the joint directed examination to the parts involved, whereupon it was found that the tumor had increased to the size of an English walnut. From this period onward, the history of the tumor is embraced in the record of progressive increase of size, along with augmentation of pain and stiffness of the articulation, together with the supervention finally of marked numbness and great œdema of the leg.

Mr. H. called on us, in this city, in the summer of 1870, requesting examination and diagnostic opinion respecting the nature of his injury, being still in doubt as to its real character. The tumor now attained to the size of a goose-egg, and presenting, in well-pronounced degree, all the physical signs of aneurism, taken in connection with the past history, left no obscurity. The case being one to which compression by means of flexion was applicable, and the general condition being such apparently as to specially indicate the precedence of this method over every other means, we very earnestly recommended its employment, urging the patient to give it a fair and persevering trial, giving him full and explicit directions for its effectual application.

A man of family, and living at a distance from us, Mr. H. preferred to return to his home to have the proposed treatment carried out under the professional supervision of his family physician, Dr. Ligon, of Dangerfield. Thus we lost sight of the case until February 27, 1872, when we were called to visit Mr. H. at his residence, for the purpose of operating by ligature.

On arriving at the house of Mr. H., we met Drs. Ligon and Bradfield in waiting to take part in the proposed operation, from whom we learned that Mr. H. had been under their management for several months past, during which time they had exhausted every means of compression, separately and combined, having fairly rung the changes between instrumental and digital compression, as well as that by flexion, but without benefit, the patient being very intolerant of any sort of compression, his endurance soon being exhausted each time of its renewal, necessitating its relaxation to such a degree as to render it unavailing, or its withdrawal. Fearing, however, that flexion had not been as thoroughly tested as the circumstances of the case demanded, from the seeming amenability of the case in hand to this kind of treatment, and appreciating, too, the grave responsibility of resorting to ligature without putting fairly to the test other and less dangerous means of cure, we suggested to our professional associates in the case the propriety of further resort to flexion supplemented by digital compression over Poupart's ligament, under our combined efforts, agreeing to operate the next morning if this procedure should prove unavailing. Physicians and patient acquiescing and coöperating, we set ourselves about the task before us, commencing with the application of a very moderate force, which was gradually increased to the degree of almost cutting off the blood stream through the aneurism. Very soon, now, complaint of pain was made, which soon increased beyond the patient's power of endurance, requiring, for relief, complete suspension of compression by flexion. Digital compression now took the place of flexion, giving a season of rest from the latter, after which we returned again to flexion. So we continued to alternate between the one and the other, in the hope of our patient becoming more tolerant of our favorite mode of compression, but in this we were signally disappointed, the suffering of our patient progressively increasing, till finally—i. e., in the course of two hours—he pronounced the suffering produced by flexion insupportable, and pleaded earnestly for relief by ligature, expressing his willingness to encounter the risks of any rational procedure which should be unattended by the pain experienced by flexion.

February 28th.—Patient under chloroform, and assisted by Drs. Ligon and Bradfield, we performed the Hunterian operation, ligating the superficial femoral in the apex of Scarpa's triangle, in the ordinary manner.

The subsequent history of the case embraces nothing of sufficient importance to justify a detailed account of the daily record here. It will suffice for our present purpose to state that the favorable progress of the case to complete recovery was uninterrupted by any complication; the patient reäcting from the effects of chloroform without nausea or vomiting, with scarcely perceptible constitutional disturbance; the wound healing in a few days, except at point of ligature. The ligature being detached on the nineteenth day, complete reparation having been effected, and the patient discharged cured on the twenty-fourth day.

It is interesting to note in this case the failure of every means of compression to secure consolidation, or it may be more correct to say the inapplicability of these methods singly or combined, to the case in hand, the subject breaking down in resolution time and again after a very short period, thus showing his complete intolerance of their sufficiently continued application.

It is remarkable that, with such abundant opportunities for settling the question finally, the surgical world should, to-day, remain in doubt and uncertainty respecting the effects of ligation of arteries upon the temperature of the parts beyond the site of ligation; some alleging that the temperature in the anatomical district referred to rises; whilst others as positively state that it falls. From Ashhurst's Surgery, one of the most advanced as it is one of the most excellent works on the subject with which we are acquainted, we make the following quotation as embodying the views of the two opposite classes of believers on this point of doubtful pathology:

"The immediate effect of deligation is to arrest the aneurismal pulsation and bruit, the limb below the ligature rising in temperature, and often becoming painful and hyperæsthetic; loss of muscular power is also occasionally met with."—Page 536.

And on same page we find the following reference to the paragraph above quoted, in a foot-note:

"This statement is in accordance with the result of observation, and corresponds with the doctrine of Holmes; most writers, however, teach that the temperature at first falls and subsequently rises when the collateral circulation is established. But, according to Broca, as quoted by Holmes, this rise of temperature does not take place in animals, although in these the collateral circulation is most rapidly established. The increased temperature is apparently due to capillary congestion, caused by the sudden removal of the vis a tergo of the heart's action, aided perhaps by a positive dilatation of the capillaries, brought about through the agency of the nervous system."

The case above detailed occurring in the person of a vigorous young adult male, of sound constitution and in perfect health, and surrounded by the most favorable hygienic conditions at the time of operation and during the after-treatment, afforded, as we conceived, unusual opportunities for obtaining positive information illustrative of this doubtful point in pathology. We therefore had a careful record kept by a very intelligent gentleman, who remained in constant attendance upon the patient during his confinement to bed, and who made observations many times a day of the temperature, both of the operated and sound limbs, up to the fifth day after the operation, at which time the temperature of both limbs was normal:

First day—Sound limb, temperature 98°, operated limb, 95.5°; 2d day—Sound 98°; operated 95°; 3d day—Sound 98°, operated 96°; 4th day—Sound 98°, operated 97.5°.

CHEMICAL AND PHARMACEUTICAL.

"Diruit, ædificat, mutat."---HOR.

The Abortive Action of Quinia.—The thrice-vexed question of the action of quinia upon the uterus has claimed a large share of attention. That this agent does sensibly excite uterine contractions can hardly be doubted; the evidence on this point is overwhelming. Yet it is uncertain whether the few reported cases of abortion under its use have been owing to this action, or to the paludal poison for which it was prescribed. The testimony here is so conflicting, that the Société de Médecine, of Ghent, Belgium, has proposed the subject as a prize essay for 1874. After carefully weighing the evidence of his own experience and that of others, your reporter has arrived at the following conclusions: 1. That quinia, by producing intermittent contractions of the womb, has in large doses occasionally brought on abortion in the very early months of gestation. 2. That it should not, on that account, however, be withheld from pregnant ague-patients; for, other things being equal, an abortion is more likely to be induced by the visceral congestions and muscular succussions attending an attack of ague than by the oxytocic property of the antiperiodic. 3. That the uterine action of this drug is too slow and too uncertain to be relied upon in the emergencies of ante or post-partum hæmorrhages. But that, in decided doses, it will often prove of service in menorrhagic or metrorrhagic attacks. 4. That, like ergot, it acts most efficiently after labor has begun; a dose of ten grains being usually followed, in inertia, by a prompt return of the pains. 5. That, apart from its tonic and antiseptic properties, quinia is *par excellence* the remedy for puerperal disorders. By lowering the high temperature generated both by accelerated molecular metamorphosis and by rapid chemical combinations, it retards the oxidation of the tissues, hinders the formation of fibrinous concretions, and therefore prevents cardiac plugging. By contracting the walls of the womb, it tends to keep the protective coägula of the uterine sinuses from becoming loose and soluble, and to inhibit putrid and purulent absorption. Both by constringing the coats of the capillary system of blood vessels, and by paralyzing the amœboid movement of the white blood corpuscles, it presents, in puerperal fevers, an obstacle to fibrinous exudation and to the migration of the leucocytes into serous cavities.—*Trans. Pennsylvania State Med. Society.*

In a lecture reported in the "Gazette delle Cliniche," No. 29, 1873, Dr. Chiari, of Milan, says that he has given quinine to forty patients in the Royal St. Catharine Institution of that city, and has arrived at the following results: 1. Disulphate of quinine possesses no action as an abortifacient. 2. In the artificial induction of premature labor, quinine is not to be trusted, either alone or as an adjunct to mechanical means. 3. In cases of languid, suspended, or irregular labor, it would not be sound practice to trust to the action of quinine; and *a fortiori*, its effect must be regarded as negative when administered in cases of slight malformation of the pelvis. 4. The assertion of Ponti, of Parma, that ergot must give way to Peruvian bark, is chimerical, at least as regards midwifery. 5. When quinine is indicated by the presence of general morbid conditions during pregnancy, it should be given, not only as a remedy for the disease, but also as the best means of preventing abortion or premature labor. 6. Quinine has no power whatever in preventing or modifying morbid conditions of the puerperal state, whether of infectious or of sporadic origin.—*Ex.*

MISCELLANEOUS.

"Non omnes eadem mirantur ament que."

Chloral in Obstetrics.—Professor Playfair, of King's College, London, says: "There is a type of labor very common, especially in women of á highly developed nervous organization, such as constitute a large proportion of our patients among the higher classes, in which I have found chloral especially valuable. In these, before the rupture of the membranes, and the complete dilatation of the cervix, the pains are very severe, but short and ineffective, chiefly limited to the back, and producing little or no effect in dilating the os. Hours and hours of really intense agony often elapse, until the patient is wearied and exhausted by her fruitless sufferings. In cases such as these, a common and very useful practice has been to administer a considerable opiate, so as to produce some hours of refreshing sleep, after which we expect the labor to recommence with fresh vigor and effect. The disadvantage of this plan, however, is that during the action of the remedy the labor is suspended, and much time is thus lost. If, however, chloral is administered instead of the opiate, the probabilities are that the same refreshing rest will be obtained without any suspension of the pains or protraction of labor. The character of the uterine contractions will be observed to alter; they will become steady and useful, but they are not suspended."—*London Lancet.*

Rigidity or spasm of the cervix, accompanied by tenderness upon digital examination, can be treated with the most marked success by using this drug.—*Chicago Med. Jour.*

The Laughing Plant.—In Palgrove's work on Central and Eastern Arabia, we read of a plant whose seeds produce effects similar to those of laughing gas. It is a native of Arabia. A dwarf variety of it is found at Kaseem, and another variety at Oman, which attains to a height of from three to four feet, with woody stems, wide-spreading branches, and bright green foilage. Its flowers are produced in clusters, and are of a bright yellow color. The seed pods are soft and woolly in texture, and contain two or three black seeds of the size and shape of a French bean. Their flavor is a little like that of opium, and their taste is sweet; the odor from them produces a sickening sensation, and is slightly offensive. These seeds contain the essential property of this extraordinary plant, and when pulverized and taken in small doses, operate upon a person in a most peculiar manner. He begins to laugh loudly, boisterously; then he sings, dances, and cuts all manner of fantastic capers. Such extravagance of gesture and manner was never produced by any other kind of dosing. The effect continues about an hour, and the patient is uproariously comical. When the excitement ceases, the exhausted exhibitor falls into a deep sleep, which continues for an hour or more; and when he awakens, he is utterly unconscious that any such demonstrations have been enacted by him.—*Boston Jour of Chem.*

OFFICE OF THE SUPERVISING SURGEON,
U. S. MARINE-HOSPITAL SERVICE,
TREASURY DEPARTMENT, August, 1874.

Doctor,—The Supervising Surgeon of the United States Marine-Hospital Service having been designated by Joint Resolution of the XLIII. Congress, approved March 25, 1874, in connection with a medical officer of the Army, "to confer with the health authorities and resident physicians of such towns [as were visited by the Cholera Epidemic of 1873,] and to collect, so far as possible, all facts of importance with regard to such epidemic,"—for the purpose of making a report of the same to the President of the United States to be submitted to Congress,—I have the honor respectfully to solicit a detail of the facts which came under your observation concerning the propagation and spread of the disease during that year.

The following memorandum embraces, substantially, the points upon which information is desired:

1. Name, sex, and age of patient. 2. Residence of patient—town, street, and number. 3. Day and hour of attack. 4. Premonitory symptoms, their nature and duration. 5. Progress of the disease: *a.* Day and hour of beginning of rice-water discharges. *b.* Day and hour of beginning of cramps. *c.* Day and hour of beginning of collapse. *d.* Period and extent of suspension of renal function. *e.* Nature of treatment and result. *f.* Day and hour when convalescence began. *g.* Day and hour when death occurred. *h.* Post-mortem appearances in detail. 6. Story of house occupied and height of floor from ground. 7. Sanitary condition of house and enclosure: *i.* As to cleanliness of rooms—clean, neglected, filthy. *k.* As to ventilation and light—good, defective, bad. *l.* As to drainage of house—good, obstructive, absent. *m.* As to drainage of ground—good, obstructed, absent. *n.* As to location and condition of privies or water-closets, in connection with street-sewer, mode of flushing, of ventilation, of ventilation of soil-pipe, disinfection, etc. *o.* As to service of water, garbage, or filth about the premises. 8. Source and quality of water-supply. If from a well or cistern, proximity of privy, sewer, or drain thereto, and chance of pollution. 9. General topography of localities in a given town where cholera prevailed. 10. Character of soil. 11. Character of drainage. Occupation and habits of patient, and whether a resident of house where attacked for two weeks or over. 13. The facts in any case where the patient was attacked within two weeks after removing from an infected district into one previously free from the disease, specifying the respective districts and character of exposure. 14. The sequence of cases where more than one was attended, with their relations to each other, and to the cases of other physicians, with names of such physicians. 15. The means and agents used by the physician, by the family, and by the municipal authorities to prevent the spread of the disease, and the result of such preventive measures. 16. Public measures taken to prevent the introduction of the disease into your community, with the result. 17. Tempertature, rainfall, and prevailing winds for as long a period as practicable prior to appearance of cholera, and also during its continuance. 18. Dates of first and last cases of cholera in the locality in 1873—total number of cases and mortality. 19. Connection, if any, between first cases in 1873 and the localities of the disease in the immediately preceding epidemic. 20. Names of cities, towns, and villages known to you where cholera occurred during 1873, with any

facts relating to the introduction of the disease to such, and the address of some respectable practitioner residing in each of the places named.

Contributions to this investigation, by answers to the foregoing—or to so much thereof as practicable—will be fully acknowledged in the official report, the value of which it is hardly necessary to say, will largely depend upon the coöperation of the profession thus sought.

Copies of any reports or papers which you may have already prepared on the subject, or of those prepared by others and annotated or amended by yourself, will also be of service, and may be forwarded, to be returned if desired. I am, doctor, very respectfully,

JNO. M. WOODSWORTH, Supervising Surgeon.

NOTE.—The attention and aid of readers is respectfully asked.—ED.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

"Judex damnatur cum nocens absolvitur."

THE PHYSIOLOGY OF MAN—FIFTH VOLUME. By AUSTIN FLINT, JR., M. D., Professor of Physiology and Physiological Anatomy in Bellevue Hospital Medical College. New York; D. Appleton & Co. 1874.

The issue of this volume has long been anticipated. This number completes the work which was begun eleven years ago. As the writer properly states, it is with extreme difficulty and under great disadvantages that any work on physiology can be written in this country. The facilities for original research, both experimental and literary, are so limited, that the investigator is embarrassed at almost every step of his progress. America, as a country, is great in its physical expanses and boundaries; great in the triumph and possibilities of its people; great in the accomplishment of physical undertakings; but when the test is made in regard to opportunities offered to authors who seek to reflect the truths of the past, as well as the labors of the present, this country, great in so many respects, is lamentably deficient. In great libraries, museums, galleries, etc., the opportunities offered here to the author of works on any science are necessarily limited. Scientific authors in this country deserve, on this account, additional credit for their success. With them, there is not only required the labor of patient and protracted investigation, but this labor is often not even possible, until the material for such labor is expensively and with difficulty obtained. Such views are almost involuntarily presented when one reads an account of the labor which Dr. Flint has undergone, in procuring the works of reference for his most creditable volumes. Not satisfied with furnishing citations of authorities, as given by others, he has expensively and laboriously obtained the original works cited, in order that a verification of the truth of citations may be made. Such a fact not only gives additional value to his publications, as making statements in them strictly accepted, but it places him in a most honorable position before the Profession, as one ready to expend labor and means, in order that the readers of his works may receive the truth; so far as the obtaining of truth is possible. A reviewer would be unjust to a publication and its author, if failing to draw attention to these most creditable facts.

The present volume is devoted to an elucidation of the following subjects: Touch; olfaction; anatomy of the eye; refraction in the eye; accommodation; bin-ocular vision; anatomy of the ear; physics of sound; functions of the special parts of the auditory apparatus; gustation; generation; ovulation; fecundation; development of the fœtus; fœtal life, etc., etc.

The author has not succeeded as well as usual in drawing the distinction between the sense of touch, sensibility, and what is yet vaguely termed the muscular sense. It is known that in rare cases (one recently studied by the reviewer) the sense of touch and the muscular sense may be destroyed, while sensibility, and motion due both to reflex action and to volition are unimpaired. If, as is stated by Dr. Flint, the tactile sense and sensibility are both due to sensory nerves decussating in the cord, how is it that in disease the tactile sense may be destroyed, while sensibility is not impaired. Again, if the muscular sense be dependent upon motor nerves decussating at the medulla, and if motion be dependent upon the motor nerves also, how is it that the muscular sense may be destroyed, while reflex and volitional motion are unimpaired? Assuming the absolute truth of such teaching, if the tactile sense and sensibility be due exclusively to sensory nerves, the destruction of the tactile sense must logically involve the destruction of sensibility; but such is not the fact. Again, assuming such teaching to be true, if the muscular sense and motion be due to motor nerves, the destruction of the muscular sense would, of course, involve the destruction of the power of motion; but such is not the fact.

Dr. Flint is then apparently in error, when he states that the anatomical and physiological explanation given by him "enables us to separate pretty clearly the muscular sense, so-called, from the various modifications of sensibility." The indisputable fact, that sensibility is at times retained wholly unimpaired, while the tactile sense is wholly destroyed (as will be illustrated soon in the clinical records of a case recently attended), would indicate (if the sense of touch and sensibility be due wholly to sensory nerves decussating in the posterior column of the spinal axis) that sensibility and the tactile sense must be due to *separate filaments* of sensory nerves; just as in the retina once regarded as an integer in tissue and function, it is now evident that different colors are appreciated by the action of separate and distinct retinal cones. If the retina, once regarded as simple in structure and function, is now known to be multiplex in its layers, and having rods and cones of separate and distinct function, it is surely rational to assume (as the result of clinical facts and from analogy) that sensory nerves, now regarded as the common media for transmitting the sense of touch and the perception of pain, have really separate filaments; those for transmitting tactile impressions, and those for transmitting what is termed pain. In no other way can the clinical facts be explained, that while sensibility is perfect, even exaggerated, the tactile sense may be destroyed. While Dr. Flint's work is no more defective in this respect than others, he is (it appears) in error, when he suggests that physiology and anatomy enable us, at present, to explain how the muscular sense may be destroyed, while the power of motion is unimpaired; that sensibility may be perfect, while the sense of touch is destroyed.

In his physiology of the other senses, his teachings are plain, "fully up to the times," and clearly expressed. He believes that the sense of smell is due to the olfactory nerves alone, and is not attributable in any manner to the nerves of gustation. His explanations by description and by diagram of the eight layers of the retina, their histology and function are excellent. His chapters on refraction, accommodation, bin-ocular vision are well and clearly written. The physics of sound, including quality, intensity, duration, overtones, harmonies, discord, etc., show careful reading of the best authorities; among whom Helmholtz is master. Gustation, with all of its phenomena, is well presented. Spontaneous generation is analyzed and shown to be (as it is) an absurdity. The chapters on ovulation, fecundation and fœtal development, evince the most careful study. As to the direct connection between the uterine and placental vessels, the author quotes Dr. Dalton, as follows: "The placental sinuses communicate freely with the uterine vessels"; "the uterine vessels penetrate the placenta."

The work is furnished with a complete index. As a whole, this volume is a beautiful and ornate capital to a complete and beautiful column; a column which must ever be a conspicuous monument to the talent, energy, and fidelity of the distinguished author.

HÆMORRHAGIC MALARIAL FEVER. By W. A. B. NORCOM, M. D., Edenton, N. C.

In the Transactions of the Medical Society of North Carolina there appears an interesting paper on this subject. Dr. Norcom's views are clear and tenable. He regards all of the danger of the disease as due to the cause, malaria. His treatment is consequently simple; it is as follows:

"I will not much longer detain you, as it will take me only a few minutes to give you the treatment that has so well succeeded in my hands. I shall first treat of the hæmaturic form. In this disease the doctor is called very early, either in the chill or soon after. Except measures to bring on reäction, the treatment is the same if the patient is seen after the chill. If called in the chill, see that the patient is warmly covered, have hot bricks put to feet, spine, etc., give him hot stimulating drinks, whether he retains them or not, as the vomitings thus early rarely do harm, but simply rid the stomach of undigested food or any offending matters that may be in it, and will also tend to bring on reäction. Then at once give him (if an adult) from ¼ to ⅓ gr. acetate of morphine hypodermically. If the bowels are costive, give the patient an enema soon after giving the morphine. In twenty minutes after giving the morphine, the stomach, which shortly before would not tolerate simple water in small quantities, will now bear quinine and a moderate amount of liquid food (beef-essence, beef-tea, etc.,) and stimulants. At this time, then, and soon after giving the enema, if found necessary to give it, administer to the patient by the stomach, in capsules or liquid form, ten grains of quinine, and in a very few minutes after double this quantity by enema. Should the patient not be able to retain it in either way (all of my cases did easily) give it hypodermically, in proportionate doses, very good formulæ for which may be found in the last edition of Flint's Practice.

"Let these doses be repeated every hour until at least from forty to sixty grains or more are taken. If this amount of quinine should break the fever, its discontinuance now would be sure, in all severe cases, to cause a return of the symptoms. Hence it is highly important to give every day, for three or four days, from forty to sixty grains. As it is impossible to tell exactly how much quinine to give, we had better give too much than not enough; and surely I would not advise so much if less would do. I have found the amount mentioned not too much for adults. But in from four to six hours the effects of the morphine will wear out. *As soon as we perceive it is doing so*, we must give another injection, and this must be kept up at these intervals for two or three days. This at once puts the patient in a sweat (the skin thus supplementing the work of the kidneys), and markedly relieves the distressing nausea and vomiting; the exhausting restlessness and jactitation, too, gradually giving way to quiet and repose. The patient during all this time must have all the beef-tea and chicken-tea, oyster soup, etc., he can possibly digest, as well as good brandy or whiskey, at intervals varying from one to three hours. One ounce of brandy or whiskey (except in old topers) every two hours will generally be enough. I have never given a purgative in this disease. I would do so if I could get its good without its bad effects; but, except one, I have never seen a case of this disease, so *fearfully* prostrating is it, in which I did not think purgation would tend greatly to bring about a fatal result. I generally give a mild purgative as convalescence begins. I treat all forms of malarial fever on the abortive plan. Iced champagne, and lemonade with claret wine in it, are very grateful drinks, and the patient may take ice and ice-water in small quantities and at not too short intervals, sedulously guarding against overloading and oppressing the stomach.

"In regard to internal hæmostatics, I scarcely know what to say, as I give none to my patients.

"Some extol the mineral acids for this as well as other purposes in this disease, but they are already retained in excess in the blood. Ounce doses of lemon juice are recommended by others. But, perhaps, the best are ergot and the preparations of iron. But, while on this subject, I must not omit to call your attention to a paper on the use of ergot in the hæmoptysis of phthisis, by Dr. Anstie, in the May (1873) number of the "Practitioner." In this he thinks he has found ergot of decided value. But let me give you a short quotation from this paper, asking you to bear in mind that his patients received at the time *no other treatment.* Says he: 'There is probably no subject in practical medicine on which more divergent opinions are held than the question how far the so-called styptics, internally administered, produce a real effect in checking hæmorrhage. That the action of the more commonly employed internal hæmostatics is, to the last degree, uncertain (even though in a moderate number of cases they may apparently act with great promptitude and effect), I think no one of large experience will deny, unless he has entered upon the inquiry with the determination to see none but successful results.' We can not easily tell the effects of a medicine without using it *alone.*

"We could not do this with hæmostatics in this disease, however alarming the hæmorrhage, without being sure our patients would all die. Add to this how difficult it is to get into these patients enough of *the essentials* to save them, and you have at once my reason for never having given them. If it be true, as asserted, that ergot slows the heart's action without disturbing its rythm, and contracts the arterioles, it may prove a good remedy. As I believe this to be its action, as Brown-Séquard's experiments tend to show, I shall try in my next cases hypodermic injections of ergot. While Dr. Dillard, of Chowan, does not think we have a true hæmorrhage in these cases, his experience leads him to think ergot useful in controlling the bloody discharges. For a long time ergot has been used as a hæmostatic.

"Sometimes, though rarely, there is present a good deal of urinary irritation, which is best relieved by bicarbonate of potash.

For a similar reason to the above, I have not used diuretics in this disease. Under ordinary circumstances they would be useful when the urine is scanty; but here it is next to impossible to get into our patient, by stomach, rectum and hypodermically, more than enough of the essentials to save him. We must *never* forget that these essentials are *quinine, nourishment and stimulants;* and that upon these, with good nursing, our patient's safety depends; *and without enough of these, other remedial measures would prove totally unavailing.*

"Rubefacients and dry cups may be applied over the kidneys and stomach. I would never blister, for the blistered surface would probably prove another source of hæmorrhage. Atomized Cologne, thrown upon the patient's face with the hand-ball atomizer, is very grateful and refreshing. Diarrhœa is best relieved by opiates—hypodermically or by enema.

"The warm bath sometimes proves very useful.

"For a month or more after convalescence begins, the patient ought to take quinine, iron, and strychnine. I generally give, thrice daily, at regular intervals, to an adult, a pill containing one grain of dry sulphate of iron, two grains of quinine, and 1-40 grain of strychnine.

"The patient, too, should live generously. Removal to a healthy climate is a very important part of the treatment."

This article of Dr. Norcom is practical and valuable, and will command attention. He treats uræmic symptoms with morphia; so do Flint, Metcalf, and Loomis.

MEDICAL NEWS.

'Nulla dies sine linea."

Dr. Burdon-Sanderson has been appointed Professor of Anatomy and Physiology in the University College, London.——— Mr. Frederick Le Gros Clark, F. R. S., has been elected President of the Royal College of Surgeons, England.———Madame Christine Nilsson has contributed £942 to the Westminster Training School and Home for Nurses.———*Medical Papers in the Public Journals.*—Prof. Paget publishes a card in the "Lancet" and in the "Medical Times and Gazette" of April 1st, in which he indignantly disclaims any responsibility for the recent appearance, in the "Pictorial World," of an abstract of one of his lectures at St. Bartholomew's Hospital, with illustrations. He complains that he emphatically protested against its publication in that way, and that the editor acted in opposition to his written request. Dr. Paget says, "I venture to hope that I am not thought likely to be guilty of encouraging the appearance of my name in newspapers." The columns of the "Journal" will always be open for the publication of similar cards from any member of the Profession who may chance to be thus aggrieved.—*N. Y. Med. Journal.*——

NOTE.—The "Richmond and Louisville Medical Journal" and the "American Medical Weekly" are both offered as media for public disclaimers, to all physicians who may be thought guilty of having their articles published in newspapers.—ED.

Archives of Ophthalmology and Otology.—The following changes, indicative of success, have been made in this valuable periodical: Drs. Emil Gruening, of this city, and Clarence J. Blake, of Boston, will coöperate with Dr. Knapp, as associate editors in conducting the English edition of the "Archives." The numbers will hereafter be issued at intervals of as nearly three months as possible, each number containing from 112 to 160 pages. Four-fifths of all the space will be devoted to original papers, and the remainder to reviews. The last issue, No. 1 of volume iv., which appeared last month, contains a variety of able original matter, and some admirably executed lithographs. The "Archives" is a credit to American literature. ———*Social Science in Michigan.*—A Social Science Association has been organized in Michigan. The first meeting was held in Detroit, June 28th. The Society will coöperate with the American Social Science Association, in the application of scientific knowledge to the welfare of mankind, especially in regard to sanitary matters.———*Archives of Dermatology.*—A new quarterly journal of Dermatology, with the above title, is announced by the Messrs. Putnam's Sons, to appear in October. Dr. L. D. Bulkley will have editorial charge, and will be assisted by a number of distinguished gentlemen in the branches of medicine with which the "Archives" will be chiefly concerned.———*Mortality in the Ashantee War.*—According to the " Medical Times and Gazette," the total number killed in battle during the Ashantee war was six—four officers and two men. Eleven others died from wounds received. Fifty-five were severely, and one hundred and thirty slightly wounded.—*New York Medical Journal.*

EDITORIAL.

"Nullius addictus jurare in verba magistri."—Hor.

A Sad Spectacle.—The British Association of Science held at Belfast, August 19th, its forty-fourth annual session. There were present such distinguished persons as Huxley, Odling, Lubbock, Stokes, Sir R. Wallace, Tyndall, and others; a brilliant assemblage of the most distinguished scientific men of the British Empire. The orator for the occasion was Professor Tyndall. It was a sad spectacle, and a sadder fact, that his address, such as it is, was delivered before such a Body.

The world had accorded to Prefessor Tyndall the position of preëminent authority on heat; light; sound, and many of the chief subjects of chemical and philosophical investigation. It had honored him beyond the honor usually accorded to the greatest dignitaries in science. The British Empire was proud of him; the savans of the world delighted to do him reverence. Such was the picture once. Such was the picture but a few years since, when the prayer-test, established under Tyndalls's advice, sent a thrill of horror through the heart of all who, if not representatives of the creed of Christianity, at least respect it; a thrill of surprise, pain and disappointment through all who, though not respecting Christianity, have certainly no respect for those who openly deride a belief entertained for centuries by many of the wisest and noblest of humanity.

All remember what was the nature of Tyndall's prayer-test; in certain wards of the hospitals the sick were to be the direct object of prayer; while in other wards they should receive no such attention. A record of mortality in each ward was to be kept, and the result was to be made the hospital test of prayer!! That a great man should suppose it possible for prayer to even a human master to be answered under such circumstances, or that a failure of answer to prayer offered partly in derision and partly in trial of Him to whom it was offered, seems incredible. Yet the fact of such a test being suggested can neither be disputed nor forgotten. The world has tried to forget; tried to hold again the author of such folly in respect. The recent spectacle at Belfast must, however, render this effort futile; must destroy the last hope entertained of seeing Tyndall ever again elevated to the position of those termed by Longfellow "the truly great."

In his Belfast address, Tyndall does not with Darwin refer matter to "primordial forms"; he does not even with Huxley, believing in preëxisting elements, assert the doctrines of the spontaneous origin of animal and vegetable forms; but rejecting "the conception of creative acts," he agrees with Lucretius, "that Nature is seen to do all things spontaneously of herself, without the meddling of the Gods"; and, with Bruno, that "matter is not the mere empty capacity which philosophers have pictured her to be, but the universal mother who brings forth all things as the fruit of her womb." Startled, shocked as was his audience, one can never conceive of their horror, when the orator thus proceeded: "Abandoning all disguise," said he, "the confession that I feel bound to make before you is, that I prolong the vision backward across the boundary of the experimental evidence, and discern in that matter which we in our ignorance—and, notwithstanding our professed reverence for its creator—have hitherto covered with opprobrium, the promise and potency of every form and quality of life."

It will be observed, that any explanation of the origin of this all potent "matter" to which Professor Tyndall ascribes "the promise and potency of every form and quality of life," is by him conveniently omitted. The monstrous creed which he thus announces admits the necessity for created matter, but his repudiating "the conception of created acts," logically reduces this creed to absurdity.

But no one can meet in seriousness and respect such foolish as well as horrible views. The very germ of them is a fallacy.

Professor Tyndall concluded his address by protesting against the invasion of science by religion!

There are occasions when all possible comment is futile in demonstrating the horrors of an act or a declaration. Such must all feel this occasion to be.

This great Iconoclast would destroy every attribute ascribed by humanity to Divinity, and set up as a substitute the hideous idol of stolid and inanimate matter. Such teaching emanating from the arena of science can only be met with prompt protest; with public declaration of censure and repudiation.

That Belfast meeting was indeed a sad spectacle.

CREDITABLE PERIODICALS.—Under this caption the editor of the "New York Medical Journal" has published an extract from the "Virginia Medical Monthly," in which latter journal complaint is made that the "Richmond and Louisville Medical Journal" has not accorded to it proper credits for material obtained. The Kentucky journal gave, it seems, to the Transactions of the Virginia Medical Society credit for matter of which the Virginia journal had previously made an abstract. Now this is all very childish. The Profession take no interest in such defamations. If the editor of a journal believes himself injured by another journal, the true course is to write and call the attention of the editor to it. In ninety-nine cases in a hundred, such a course will cement friendship, and not (as does the other course), engender ill feeling. If such a letter does not result satisfactorily, the true course is to cut off the offending journal from the exchange list. Dr. James K. Hunter, the editor of the "New York Medical Journal," issues a good work; he is, it is believed, a good citizen and physician. It is to be regretted that he should be searching the exchange list for slurs on the "Richmond and Louisville Medical Journal," that these may be republished. Such a course is unworthy of him. It injures him only; not the journal assailed, or its editor. It is true that the "Richmond and Louisville Medical Journal" has yearly proved that the "New York Medical Journal" is not the largest medical monthly in this country (as is stated in its widely disseminated advertisements); but this is a business matter, to be tested by facts and figures; not to be met by defamation, or by republishing the defamation of others. The true course for Dr. Hunter, the editor of the "New York Medical Journal," is to require the publishers of that journal to abstain from advertising what is incorrect in regard to the journal which he edits; and if this requirement be not satisfactorily met, to resign his editorship and give his reason for so doing Such action would be universally applauded. Whether his abuse of a journal claiming only justice will be applauded, the Public, always just, will determine.

As to "credits" for matter republished, this is given generally by all fair editors; if not, the failure to do so is an omission; certainly not a misdemeanor. The Public are too sensible and just to ever suppose that matter published in the departments for selections can be possibly claimed as original. The whole subject is too small for notice, but it is not too small to make this reply to unjust charges unnecessary.

BREVITIES.

The "American Medical Weekly" closes its second month with nearly seven hundred subscribers. When first issued, the Weekly was sent to many of those who subscribe for the "Richmond and Louisville Medical Journal." As the editions for July 4, 11, 18, and 25 are exhausted, gentlemen having those numbers (and who are not subscribers to the Weekly) will oblige the editor very much by forwarding them.——The "Pharmacal Gazette," Nashville, Tenn., has been several times enlarged, and presents the best evidences of efficient and successful management. It deserves success.——The present number of the "Richmond and Louisville Medical Journal," is one of the best and most costly yet issued. Subscribers will, it is hoped, observe the first fact, and remember the second. ——M. Cullerier, the distinguished syphilograper, died August 3d.

THE RICHMOND AND LOUISVILLE

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ORIGINAL COMMUNICATIONS.

"Qui docet discit."

ART. I.—URONOLOGY AND ITS PRACTICAL APPLICATIONS—A GUIDE TO THE EXAMINATION OF URINE AND ITS DIAGNOSTIC VALUE, WITH EXTRACTS FROM THE WORKS OF THE MOST MODERN INVESTIGATORS. By GEORGE M. KOBER, M. D., Washington, D. C.

The odor may also be taken into consideration in the examination of urine, depending as it does upon its normal or abnormal constituents. Medicines may impart their odor to the fluid, as saffron and cubebs, for instance. After the internal use of turpentine, the odor of violets is perceived. Several French pathologists (DeBeauvais, etc., etc.,) assert that the odor of these articles is not observed in the urine of patients suffering from an organic lesion of the kidneys. This would be a valuable aid in differentiating organic lesions from mere functional disturbances. But Vogel advises us to be chary with this diagnostic sign, as he found the characteristic odor of turpentine in a case which afterwards terminated fatally, and in which examination revealed disease of the parenchyma of the kidney. In cases where but one kidney is affected, the test, in my opinion, would be equally unreliable.

Asparagus and garlic, when taken into the system, produce a most disagreeable odor of the fluid, particularly when indulged in for a succession of days. The laity not knowing this fact, may seek medical advice, fancying a loathsome disease of the kidneys. An instance of this kind occurred last summer in the practice of Professor Morgan, of this city. When urine has been long retained in the bladder, the odor of ammonia may be perceived. The smell of stale fish is occasionally noticed, and is owing to a slow decomposition of the organic constituents of the urine. A strong urinous smell indicates a large amount of urea or its product, carb. of ammonia; a sweetish odor, like whey, is indicative of *diabetes mellitus.*

SPECIFIC GRAVITY.

To ascertain the density or amount of solid matters contained in urine, the physician generally employs the *urinometer*—although not being the most exact mode, it answers very well. To insure a more reliable result, the fluid should be brought to the temperature at which the urinometer was graduated (generally 60° F.). Mr. Uckland calculated the following table, by which this objection is partly overcome:

Temperature.	Number to be added to the indication.	Temperature.	Number to be added to the indication.	Temperature.	Number to be added to the indication.
60	.00	69	.80	78	1.70
61	.08	70	.90	79	1.80
62	.16	71	1.00	80	1.90
63	.24	72	1.10	81	2.00
64	.32	73	1.20	82	2.10
65	.40	74	1.30	83	2.20
66	.50	75	1.40	84	2.30
67	.60	76	1.50	85	2.40
68	.70	77	1.60	86	2.50

Example.—Suppose the urinometer to float in urine of 73° temperature at 21. On referring to the table, opposite 73° will be found 1.20, which is to be added to the indication 21, making the true specific gravity 21+1.20+1000=1022.20.

The specific gravity is best taken by measuring 100 c.c. of urine into a beaker or flask, whose weight is accurately known. The increase of weight in grains will be the specific gravity, water being 1000. Instead of 100 c.c., 20 or 25 may be taken, when the weight multiplied by 2 or 4, will be the specific gravity. [Sutton.] From the specific gravity we can calculate the total amount of solid matter contained in any given quantity of urine by multiplying the number above 1000 by 2 for the specific gravity below 1018, and by 2.33 for those above. We can thus calculate the whole amount of solids contained in the urine passed during twenty-four hours, provided we know its weight and its specific gravity. In urine of a specific gravity of 1010, there would be 20 grains of solid matter in each 1000 grains, and in urine of 1030, 69.90 grains. If 1000 grains of urine [specific gravity 1016] yield 32 grains of solid matter, how much would 18,000 grains [the amount passed in twenty-four hours] yield? 1000 : 32 : 18,000 x. x = 576 grains.

This method is not very precise; where exactness is required, the urine is to be evaporated to dryness, and the dry residue carefully weighed, or proceed as follows:

(1.) Measure 5 c.c. into a shallow porcelain or platinum capsule; (2) place it beside a vessel of strong sulphuric acid under a receiver of a powerful air-pump, and keep it in vacuo till all moisture is removed. The total amount of solid matter (including organic and inorganic substances) excreted by the kidneys in twenty-four hours, is rated by Golding Bird at 650, or between 600 and 700 grains; by Beale and others, it is rated at between 850 and 1020 grains. The total amount of the saline matter in urine is estimated by the following process recommended by Neubauer: A measured quantity of urine, 20 to 30 c.c., is evaporated in a porcelain crucible of ascertained weight by means of the water-bath. When the residue has become nearly dry, from one to two grammes [15 to 20 grains] of finely powdered and carefully weighed spongy platinum are mixed with it by aid of a small platinum wire, and the whole is then evaporated to dryness. The residue, with the platina, is then heated over a spirit lamp, at first very gently, and then more strongly, until the whole of the carbon in it is consumed and the residue has assumed a light gray color. By subtracting the weight of the crucible and of the spongy platinum, we obtain the amount of the incombustible salts in the urine.

The following is Sutton's mode: (1.) Measure 10 c.c. of urine in a small porcelain crucible; (2) evaporate to dryness; (3) add about ten drops of nitric acid; (4) heat the crucible to dull redness; (5) suffer it to cool, and add ten more drops of nitric acid; (6) heat it up again gradually to a moderately strong heat, until all the carbon is destroyed, and the residue is white; (7) let it cool and weigh.

What are the indications of a high or low specific gravity?

In proceeding to answer this question, I must again call attention to the great fluctuation in the specific gravity of normal urine. I have pointed out in my previous paper (pp. 237–238) the numerous causes which may influence the specific gravity. In this and all the other examinations of urine, we are only then benefited and guided when we observe well and reason better.

We must, above all, take into consideration the quantity of urine passed in the twenty-four hours, the amount of food and drink taken into the system, and the weight and age of the patient. If the quantity of urine is less than the average, and the specific gravity higher than normal, no inconsistency exists; and since the specific gravity of urine depends upon the amount of solids contained therein, and these again upon the amount of tissue metamorphosis, and the food taken into the system, we can readily understand why the specific gravity of urine is high in all affections characterized by great destruction of tissue; and that the character of food, particularly if it consists of highly nitrogenous substances, will influence the specific gravity, by the presence of an increased amount of urea.

The weight of the body must be taken into consideration, inasmuch as a patient of large weight may not discharge more urine in the twenty-four hours than one of considerably less weight; but would not the quantity of solid matter, in obedience to. physiological laws, be more in the former than in the latter case? The variation of the specific gravity in age explains itself, if we remember the source of the solid constituents.

As the specific gravity is greatly influenced by the amount of urea (excluding of course diabetic urine), the physician can assume that the rise and fall of the specific gravity corresponds to an increase and diminution of this important constituent. Often, however, the specific gravity is low, owing to the retention of this substance in the system.

The specific gravity is high in urine of a deep color, seen in the acute febrile affections, particularly during the violence of fever. The quantity of urine in these cases is generally diminished.

In diabetes mellitus the specific gravity is high, 1030 or more; also after the administration of saline diuretics; in both the quantity of urine is increased. The specific gravity is low in certain forms of Bright's disease, in hysteria, and all pale urines, excepting that in diabetes mellitus.

RE-ACTION OF URINE.

We have seen, in speaking of normal urine in the previous paper, that it reddens blue litmus paper, showing its acid reäction, that this was due to its acid salt (the bi-phosphate of soda), and that the degree of acidity varied greatly. If no food has been taken into the system for hours, it becomes highly acid; that passed after meals, or while digestion is still going on, is but faintly so; it may be neutral or even alkaline. Dr. Jones found that the acidity of urine was not augmented by continued fasting, for after twelve hours or so no increase in the acidity could be observed. There are many causes which may disguise the true reäction of this fluid. Thus the urine may be alkaline when excreted, but being mixed in the bladder with an acid urine, becomes neutralized, if not acidified; or urine may be acid when secreted, and meeting in the bladder an alkaline urine, will assume a similar property. For the cause of alkalinity of urine after meals, and its normal acid reäction, we must, according to Roberts and Vogel, look to the blood. (See p. 245 of previous number.)

The different mineral and vegetable acids, when introduced into the system, will increase the acidity of urine. An acid urine is of importance to the physician only when, by a quantitative analysis, it has been ascertained that the amount of acid exceeds the normal proportion.

The acidity of urine is very strongly marked, if an acid (lactic, oxalic or kryptophanic*) be present, which will separate uric acid from the ammonia with which it is combined, or if the uric acid be in decided excess.

The amount of free acid is measured by a solution of carbonate of soda, containing 530 grains in the 10,000 grain measure = 53 grammes in the litre; and is represented by determining how many grains of crystallized oxalic acid a certain quantity of the soda solution will neutralize.

The details of the process are as follows: 1. Take 50 or 100 c.c. of perfectly fresh urine; (2) add from a burette a standard solution of soda, in small portions at a time, say 5 c.c. or drop by drop; (3) after every addition, test the fluid, by moistening a thin glass rod or feather with the mixture, and streak it across some well prepared violet litmus paper; when the streaks cease to become red, the analysis is complete; (4) estimate how much of a standard solution has been used, and express the acidity as equal to so many grains of crystalized oxalic acid.

Note on Kryptophanic Acid.—Thudichum, in 1870, announced that he had discovered a free acid in normal urine and named it kryptophanic acid [$C_5 H_9 NO_5$ or $C_{10} H_{18} N_2 O_{10}$]. He considers it the principle of the so-called extractive matters, and recommends the following mode for its detection :

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* For Kryptophanic acid, see note on this page.

1. Evaporate fresh urine to one-third; mix with excess of milk of lime or baryta, allow to stand for a few hours and filter; acidify the filtrate with acetic acid, evaporate to a syrup, and set aside to crystallize. Separate the crystals by draining and pressure from the mother liquor; add to the latter five times its volume of alcohol, of 90 per cent., shake well, allow to stand for five minutes; pour off the liquid, and wash the precipitate with a little more alcohol. Warm the sticky deposit to drive off the adhering alcohol, dissolve in a small quantity of water and filter. To the filtrate add twice its bulk of saturated solution of lead acetate, filter from the dark brown precipitate, mix the filtrate with three volumes of 90 per cent. alcohol, wash with alcohol the nearly white precipitate of lead kryptophanate; lastly, wash with a little absolute alcohol, dry at 100° C. and weigh.

2. Mix with water to a thin cream, and for every 100 parts of the dry salt, add an equal weight of sulphuric acid, containing 25 per cent. of H_2SO_4. After standing for some time, with frequent agitation, filter and test a portion of the filtrate for sulphuric acid; if any be present, precipitate it out exactly with baryta water, adding no excess, and filter. Evaporate the filtrate to a thick syrup, precipitate with 90 per cent. alcohol, wash the precipitate with a little more alcohol, and dry the pure kryptophanic acid at a very gentle heat, or in vacuo.

3. The acid is very soluble in water, nearly insoluble in alcohol, insoluble in ether.

4. Dissolve a portion in water; the solution has a pleasant acid taste. Use it for the following experiments:

5. Add a little saturated lead acetate solution; a white precipitate will fall, redissolved by excess, and again precipitate by alcohol.

6. Add copper acetate; a green precipitate will form, behaving like the lead compound.

7. Dry a portion of the green precipitate at 100° C., and distill with a small quantity of water. The substance will turn dark green, and alcohol will be found in the distillate,

proved by a diminished specific gravity, and by its reducing a drop of potassium bichromate and sulphuric acid.

8. Add copper sulphate in excess, then excess of caustic potash. If, "on long boiling," the copper is reduced, the acid is yet impure; the pure acid does not reduce copper solution.

9. Add mercuric nitrate, or acetate, or silver nitrate; a white precipitate will fall, soluble in nitric acid.

10. Add ammonio-nitrate of silver; the soiutlon will become dark, and will gradually deposit black metallic silver.

11. Heat a kryptophanate in the solid state, on platinum foil; acid vapors are perceived, but no urinary smell, and a residue of almost incombustible charcoal remains.

12. Add barium or calcium chloride; no precipitate. Add ferric chloride; a brown precipitate will fall, soluble in excess or in ammonia, deposited again on boiling.

Intense acidity of urine may favor the formation of sediments or concretions of uric acid in the bladder, and frequently causes irritation and inflammation of the urinary passages. The alkaline treatment is to be pursued in these cases.

It has been frequently observed that a specimen of urine may respond, by the litmus-paper test, both to an acid and alkaline reäction. [Neubauer and Vogel's Anleitung, 6th edition, Wiesbaden, 1870, page 257.] This paradoxical phenomenon is explained by Vogel as follows: In the beginning of alkaline fermentation, the developed ammonia may unequally diffuse itself in the liquid, and render only some parts alkaline; or it may form, above the level of the fluid, an ammoniacal sphere, while other portions of the same fluid still retain sufficient phosphate of soda to render them acid in reäction.

Healthy urine generally remains acid for twenty-four hours. Should it lose its acidity sooner, it signifies almost as much as if the fluid had been discharged in a neutral or alkaline state. For the physician to attain reliable results, he must be satisfied that the fluid about to be examined was voided within twenty-four hours, that the vessel was clean and free from all impurities, and that it has not been added to a urinal containing portions of an alkaline urine. He should, according to Sir Henry Thompson, direct his patients to pass first two ounces into one vessel, and the remainder separately.

It is a well known fact that, if a specimen of urine of acid reäction is added to an alkaline or neutral fluid, both will lose their characteristic reäction, and hence are unreliable for examination. The urinals must be perfectly clean, and should be washed as soon as the urine has been examined.

The alkaline reäction of urine, in health, was stated to be due to the process of digestion or a fixed alkali, like carbonate of potassa or soda, depending upon the introduction of articles of diet, such as vegetables, or the citrates, malates and tartrates into the system.

If red litmus paper be immersed into an alkaline urine (produced as above), it turns blue, and remains so when dry. A glass rod, previously moistened with hydrochloric acid and held above the surface of the urine, produces no white nubecula.

This alkalinity of urine is not inconsistent with health; but, if it continues for any length of time, kept up by an undue introduction of articles containing alkalies, or substances convertible into such, into the system, and especially if the urine exhibits sediments of the *earthy phosphates* soon after it has been discharged from the bladder, the physician must interdict their use, lest it may lead to the deposit of these phosphates within the urinary passages.

The alkaline reäction produced by the presence of volatile alkali, due to the decomposition of urea into carbonate of ammonia, is always to be viewed as pathological.

In this condition of alkalinity, the red litmus paper turns also blue, but the original red tint is restored as soon as the paper becomes dry. A glass rod, moistened with hydrochloric acid and held above the surface of the urine, will evolve white nubeculæ.

"In alkalescence from either cause, the earthy phosphates are precipitated, the fixed alkali causing the precipitation of the amorphous phosphate of lime; while by the volatile alkali, the phosphates of ammonia and magnesia, in conjunction with the phosphate of lime, are thrown down, and the triple phosphate is abundantly formed, and can be easily recognized under the microscope by its beautiful prismatic crystals."—(*Da Costa.*)

I have partly pointed out the pathology of this kind of alkaline urine, in speaking of alkaline fermentation, and I here repeat that the urine loses its acidity in the bladder, owing to fermentive processes which may be going on there under certain circumstances. We see this in paraplegia, in paralysis of the bladder, and in diseases of the lining membrane of the urinary passages; the large amount of mucus or pus, the favorable temperature, together with a retention of this fluid in the bladder, will soon lead to the decomposition of urea into carbonate of ammonia, and the consequent alkaline reäction of the urine.

This condition of alkalinity of urine is often very troublesome and long continued. If the mischief is owing to a long retention of the urine in the bladder, as in paralysis, etc., the treatment should consist in drawing off the urine three or four times a day.

If the alkalinity be produced by an admixture of mucus or pus, as in catarrhal and inflammatory affections of the lining membrane of the urinary passages, and the inflammatory process induced (as it most frequently is) by an intense acid condition of the urine, or concretions of uric acid, the treatment must consist of demulcents, as flaxseed tea, with the addition of either the carbonate or acetate of potassa. Nothing, however (as Vogel very justly remarks), is more common than the administration of acids in all cases of alkaline urine. The physician calls this "*rational treatment*" and "*physiological therapeusis;*" but does he not ignore the cause by pursuing such treatment indiscriminately? Surely an acid is not indicated when intense acidity of the urine has caused the mischief; the urine in these cases is frequently acid, when secreted by the kidney, and is only changed (as in cystitis) during its retention in the bladder.

We often meet an alkaline urine from a fixed alkali, with large sediments of the earthy phosphates, and we can not account for this condition, either in the above way or by an undue introduction of alkalies into the system. This is indicative of a serious affection, commonly known as the "*phosphatic diathesis*." I shall speak more fully on this subject, under the phosphates, in a subsequent paper.

"INCREASE AND DEFICIENCY OF UREA."

We have learned (page 232 of previous Journal) the source of urea, that it is the product of nitrogenized substances, that the average quantity eliminated by an adult in 24 hours is 500 grains, and that the amount was influenced by the food partaken of, as well as by mental and bodily activity.

All influences which tend to produce destruction of tissue will cause the quantity of urea to be increased. If a sufficient amount of nitrogenous food be taken into the economy, and there assimulated so as constantly to rebuild the broken down tissue, nothing is lost; but if either of these conditions be not fulfilled, wasting of the body follows.

The physician, in making deductions from the amount of urea excreted by his patient, must take into consideration its fluctuations in health, the weight, age and sex of the patient, and never forget that the same causes which tend to increase and diminish its quantity, in health, may still operate in disease. [See p. 232 of last paper.]

An abnormal amount of urea becomes the index of the amount of destruction of tissue, or disassimilation; we find this in all inflammatory diseases and fevers, hand in hand with the emaciation of the patient; also, in certain forms of dyspepsia, in which the food is speedily passed off in the shape of urea instead of acting its part in the nutrition of the economy. These cases of "Azoturia," Dr. Sieveking described in the pages of the "British Medical Journal," in May, 1865; they are characterized by a large amount of urea, without increase in the quantity of urine; no febrile reäction, but languor, weakness, nervousness, associated sometimes with mental anxiety or sexual excess. They are apt to pass into diabetes mellitus.

In the acute febrile affections (pneumonia and typhus), the amount of urea increases, with the violence of the fever, to 670, 900 or even 1200 grains in the 24 hours. With the abatement of the fever, the amount is often diminished to 200 or 250 grains in 24 hours. During convalescence, and with the return of the appetite, it gradually increases until the normal standard is reached. In intermittent fever, it is increased during the paroxysm, and even before and during the cold stage, which rather supports the theory of actual fever during that stage. I may mention here that Vogel has not always found an increased elimination of urea to go hand in hand with the elevation of the temperature in fevers, etc. But it can not follow that, because the amount eliminated is not abnormal, there is no increase, since, as will be presently shown, a retention of this substance in the system may take place.

A deficiency of urea in the urine indicates either a decrease of tissue changes, as in long continued organic diseases; it may be due to an insufficient supply of nitrogenous food, or to a want of power of the kidney to eliminate urea; in the latter case, retention and accumulation of this substance in the system is the result, and the train of symptoms known as "uræmic poison" will follow. Some, physiologists maintain that the retained urea is decomposed into carb. of ammonia, and that it operates as such, as a poison The experiments of Professor Hammond and others seem to disprove this hypothesis. It matters little whether it is the urea or its product, carb. of ammonia, the symptoms remain the same; they are characterized by nausea, headache, convulsions and coma. Dr. Flint believes that the occurrence of these symptoms during or subsequent to scarlatina with renal complications, in nephritis and in Bright's disease, are owing to uræmic poison. It is stated, and upon good grounds, that a form of puerperal convulsions originates from the retention of urea in the blood, it being produced by the pressure of an impregnated uterus upon the renal arteries.* Flint also points out the development of amaurosis and inflammation of serous membranes as results of uræmia; and that it stands in causative relation to pneumonia. Persistent vomiting and purging belong to the clinical history of uræmia; nature endeavors, so to speak, to rid the system of a poison through the gastro-intestinal membrane. We may suspect the existence of uræmia from the inadequate amount of urea excreted, from a low specific gravity of the urine, or suppression of the same, and may be positive of it from the concurrence of headache, nausea, vomiting, convulsions and coma.

Not infrequently urea is diminished in the urine or entirely absent, having been replaced by tyrosine and leucine. This condition is less significant to the physician, and is not apt to be followed by any serious consequences. I shall devote a few words to leucine and tyrosine further on.

Estimation of Urea.—A rough way to estimate the quantity of urea, is to drop nitric acid into a porcelain capsule holding urine which has been evaporated to a mucilaginous consistence. Crystals of pearly lustre, which the microscope at once shows to be nitrate of urea, are developed, and by always evaporating the same quantity, and using a capsule of equal size, we may judge the amount of this important ingredient, as compared with that contained in other specimens of both normal and abnormal urine. If crystals form without the urine being concentrated by evaporation, simply on the addition of about an equal bulk of nitric acid, urea is always in considerable excess. The deep yellow color, the strong urinous smell, together with a high specific gravity, will often alone convince us of its presence in abnormal quantity.

The subjoined table (page 374), devised by Prof. Sam. Haughton, will give approximately the quantity of urea eliminated in the urine in twenty-four hours, if the number of ounces and the specific gravity have been previously ascertained. The table is one of double entry. When the daily excretion of urine in fluid ounces and its specific gravity are known, at the intersection of the corresponding columns the excretion of urea is given in grains. The table answers all practical purposes, and is reliable, except when sugar or albumen is present.

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* This condition may eventuate in Bright's disease; Dr. Busey on the induction of artificial labor in uræmia.

I.—*The following Mode of Estimating the Urea* in urine is based on the combination which forms between urea and oxide of mercury in neutral or alkaline solutions. The method was devised by Liebig. The precipitate which is formed is insoluble in water, or in weak alkaline solutions. The standard test solutions—viz., "*the standard solution of nitrate of mercury,*" and the "*baryta solution,*" are required; and the indicator which shows when all the urea has entered into combination with the mercury, and when the latter predominates, is a solution of carbonate of soda. The method of procedure is thus given:

(1.) Take one volume of the baryta solution (20 c.c.) [obtained by mixing one volume of a solution of nitrate of baryta with two volumes of a caustic baryta solution, both prepared by cold saturation,] and mix with two volumes of urine (40 c.c.). [The precipitate may be reserved for determining the phosphoric acid]; (2) after filtration, take 15 c.c. of the fluid (=10 c.c. of urine) for each analysis, in small beakers; (3) bring the beaker under the burette containing the mercurial, solution (the strength of this solution recommended is such that 20 c.c. of the solution exactly suffice for the precipitation of the urea in 10 c.c. of a standard solution of urea, in which this quantity of fluid contains precisely 200 milligrammes of urea), which is to be added in small quantities so long as a distinct precipitate is seen to form, the mixture being stirred constantly; (4) a plate of glass or porcelain is now to be sprinkled with a few drops of the solution of carbonate of soda, and a drop of the mixture brought from time to time in contact with the drops of soda-solution by means of a glass rod. So long as the mixture of the two drops thus brought together remains white, free urea is still present in the mixture, and more of the test solution must be added to the urine till the contact of the drops with the soda-solution produces a yellow color, which is distinctly apparent; (5) record the quantity of mercurial test solution used, and so calculate for the amount of urea contained in the 10 c.c. of urine, and hence in the total discharge for twenty-four hours; (6) repeat the analysis at least twice; if albumen is present, coägulate it by exposure to heat, and remove by filtration before testing for urea.

II.—*Estimation of Urea based upon Liebig's Method,* closely allied to the above. [Thudichum.] (1.) Dissolve in a beaker 100 grammes of pure mercury in about 500 grammes of pure nitric acid; add a further quantity of nitric acid in drops, gently shaking occasionally, until no red vapors are evolved either on the addition of nitric acid or on shaking; then evaporate the solution at a gentle heat until it is a colorless syrup. Care must be taken that none of the liquid is lost by spurting.

(2.) Dilute the solution to exactly 1400 c.c., adding a little nitric acid to prevent the formation of an insoluble basic salt. This forms the standard solution of nitrate of mercury, each cubic centimetre of which represents a centigramme of urea. To be certain of its strength, a test experiment should be made by estimating a known quantity—about two decigrammes—of pure urea, as described hereafter.

(3.) Prepare cold saturated solutions of baryta water and barium nitrate; mix two volumes of baryta water with one volume of nitr. of barium solution. This mixture forms the baryta solution used in the analysis.

(4.) On a glass plate, under which is a piece of white filter paper, place a number of small drops of carbonate of soda solution.

(5.) Add to 30 c.c. of urine 15 c.c. of the baryta solution; mix well with a stirring-rod, and filter through a dry filter paper. Measure off 15 c.c. of the filtrate (= 10 c.c. of urine) into a small beaker, add the standard nitrate of mercury solution from a burette or other graduated vessel until a drop of the mixture, when added to a drop of carbonate of soda solution on the glass plate, produces a distinct yellow color in two seconds. When this color appears, read off the number of cubic centimetres used; each centimetre required indicates one centigramme of urea in the 10 c.c. of urine. Thus, if 25 c.c. of mercury solution were used, there would be 25 centigrammes or 0.25 gramme in 10 c.c., or 25 grammes in the litre.

Another method has been recommended by Dr. Edmund W. Davy ("Phil. Mag.," vol. vii., 4th series, p. 385). The process is based on the fact that urea is readily decomposed by hypochlorite of soda (Labarraque's solution), when the nitrogen being evolved as a gas, the amount of urea is estimated from the amount of nitrogen gas produced by the decomposition. A strong glass tube, about fourteen inches long, closed at one end, and its open extremity ground smooth, is required. The bore of the tube must not be larger than the thumb can conveniently cover—i. e., half an inch in diameter. It ought to be graduated into cubic inches, commencing from the closed end, and each cubic inch again subdivided into tenths and hundredths.

The following are the details of the process: (1.) Fill the tube more than one-third full of fluid mercury; (2) pour in carefully half a fluid drachm to one drachm of urine; (3) holding the tube in one hand near its open extremity, and having the thumb in readiness to cover the aperture, quickly fill it completely full with a solution of hypochlorite of soda (taking care not to overflow the tube), and then instantly cover the opening tight with the thumb; (4) rapidly invert the tube once or twice to mix its contents; and (5) finally open the tube under mercury contained in a strong cup or small mortar. (6) the tube is left in the upright position till the evolution of gas ceases, which it generally does in from three to four hours; (7) record the amount of gas found, and estimate the urea by the following data: 1.549 cubic inches of gas represents one grain of urea.

The hypochlorite of soda used should always be five or six times the volume of urine operated upon. The liquor sodæ chlorinatæ of commerce always gives erroneous and exagger-

PLATE 3.

Uro-microscopy, after Dr O. Funke, Vogel & Lambl.

Fig. 1.

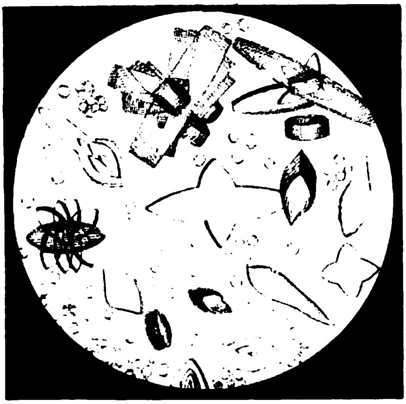


Fig. 2.

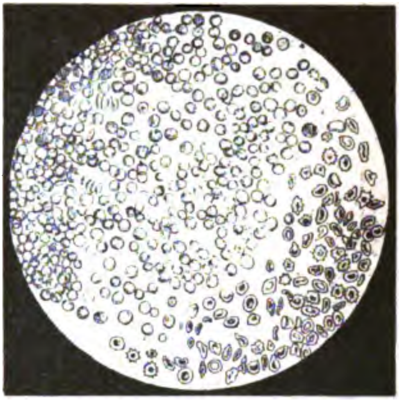


Fig. 3.

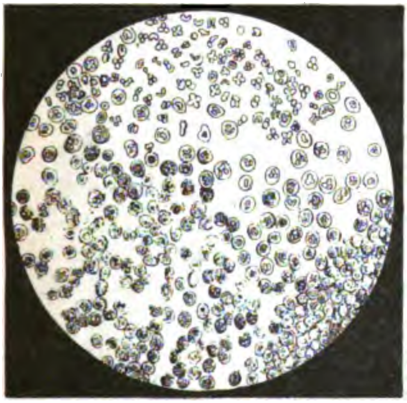


Fig. 4.

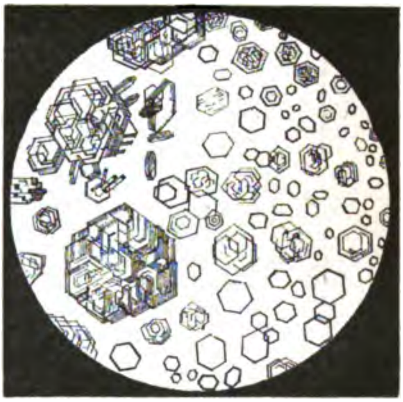


Fig. 5.

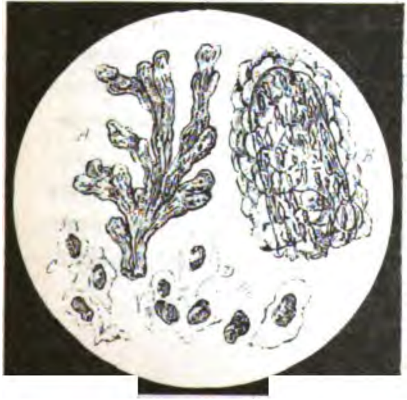
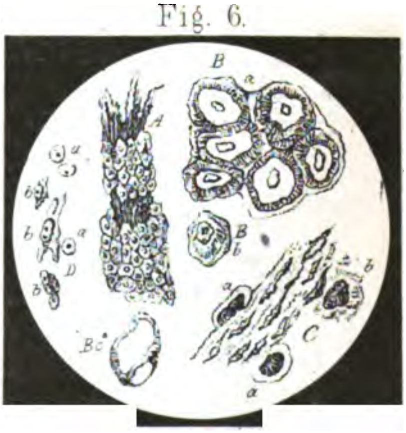


Fig. 6.



ated results. With the imported French solution, the result is gratifying and reliable.

I have dwelt somewhat at length upon this subject, and endeavored to give the different methods for the estimation of urea. I hope the physician will not find them difficult of execution. The study of urea seems to me highly important. Perhaps many cases of unexpected death, and deaths from undetermined causes, might have been explained had the urine been examined.

The Therapeutical Indications in uræmia are: Promotion of its excretion by the kidneys and to favor its vicarious elimination by cathartics, warm or hot baths, etc.

Most physicians are aware in our days of the theory advanced by Simon, Lehman, Brown-Séquard, and others, that the kidneys defibrinate the blood. I have seen this theory satisfactorily demonstrated by Professor J. H. Thompson, of this city. It is claimed that the kidneys destroy a certain quantity of fibrin daily, and that, since its quantity is not diminished in the blood, a fresh supply must be constantly formed elsewhere. What becomes of the fibrin during its passage through the kidneys is a question yet to be determined. It is certain, however, that it is not discharged from the system as fibrin, since it has not been detected in normal urine.

The practitioner who has accepted the above theory has also, in many instances, adopted the treatment suggested by it; looking upon the kidneys as defibrinators, he has whipped up these organs a little more than he otherwise would have done.

While I admit the philosophy of such treatment in all cases where the kidney is not itself affected, I can not refrain from saying, that these organs, when diseased, are only too often overworked by diuretics. I have every reason to believe that the physician, in treating Bright's disease, will meet with success, if not in curing the lesion, certainly in prolonging life far beyond the usual period, by giving the diseased kidneys that rest which is so essential in the treatment of all inflamed organs, and by favoring the vicarious elimination of urea, etc.

SPECIFIC GRAVITY.

Fluid Ounces	1003	1004	1005	1006	1007	1008	1009	1010	1011	1012	1013	1014	1015	1016	1017	1018	1019	1020	1021	1022	1023	1024	1025	1026	1027	1028
20	35	36	43	57	71	85	100	103	106	119	130	136	142	151	160	196	233	241	249	257	265	274	276	278	279	280
21	37	38	45	59	74	89	105	108	111	124	136	142	149	158	168	205	245	253	261	269	278	288	290	292	292	294
22	38	40	47	62	78	95	110	113	116	130	143	149	156	166	176	215	257	265	274	282	292	301	303	305	306	308
23	40	41	49	65	81	97	115	118	121	136	149	156	163	173	184	225	268	277	286	295	305	315	317	319	320	322
24	42	43	51	68	85	101	120	123	127	142	156	163	170	181	192	235	280	289	299	308	319	329	331	333	334	336
25	43	45	53	71	88	106	125	129	132	147	162	170	177	188	200	245	291	301	311	321	332	342	345	347	348	350
26	45	47	55	73	92	110	130	134	137	153	169	176	184	196	208	254	303	313	324	334	346	356	359	360	362	364
27	47	49	57	76	95	114	135	139	143	159	175	183	191	213	216	264	314	325	336	347	359	369	372	374	376	378
28	48	50	59	79	99	118	140	144	148	165	182	190	198	221	224	274	326	337	349	360	372	383	386	388	390	392
29	50	52	61	82	103	122	145	149	153	171	188	197	205	228	232	284	337	349	361	373	386	397	400	402	404	406
30	52	54	64	85	106	127	150	155	159	177	195	204	213	226	240	294	349	361	374	386	399	411	414	416	418	420
31	54	55	66	87	109	131	155	160	164	182	201	210	220	233	248	303	361	373	386	398	412	425	428	429	432	434
32	55	57	68	90	113	135	160	165	169	188	208	217	227	241	256	313	373	385	308	411	425	438	442	443	446	448
33	57	59	70	93	116	140	165	170	175	194	214	224	234	249	264	323	384	397	411	424	438	452	455	457	460	462
34	58	61	72	96	120	144	170	175	180	200	221	231	241	256	272	333	396	409	423	437	451	466	469	471	474	476
35	60	63	74	99	124	148	175	180	184	206	227	238	248	264	280	343	407	421	436	450	464	479	483	485	488	490
36	61	64	76	102	127	153	180	185	191	212	234	244	255	271	288	352	419	433	448	462	477	493	497	499	502	504
37	63	66	78	105	130	157	185	190	196	218	240	251	262	279	296	362	430	445	461	475	490	507	510	513	516	518
38	65	68	80	108	134	161	190	195	201	224	247	258	269	286	304	372	442	457	473	488	503	520	524	527	530	532
39	67	70	82	111	138	166	195	200	206	230	253	265	276	294	312	382	453	469	486	501	516	534	538	541	544	546
40	69	72	85	114	142	170	200	206	212	236	200	272	284	302	320	392	465	482	498	514	530	548	552	555	558	560
41	71	73	87	116	145	174	205	211	217	241	266	278	291	309	328	401	477	494	510	527	543	562	566	568	571	574
42	74	75	89	119	148	178	210	216	222	247	373	285	298	317	336	411	489	506	523	540	557	575	580	582	585	588
43	75	77	91	122	152	182	215	221	228	253	279	292	305	324	344	421	500	518	535	553	570	589	503	596	599	602
44	76	79	93	125	156	186	220	226	233	259	286	299	312	332	352	431	512	530	548	566	584	603	607	610	613	616
45	78	81	95	128	160	191	225	231	238	265	292	306	319	339	360	441	523	542	561	579	597	616	621	624	627	630
46	80	82	97	130	163	195	230	236	243	271	299	312	326	347	368	450	535	554	573	592	611	630	635	638	641	644
47	82	84	99	133	166	199	235	241	249	277	305	319	333	355	376	460	546	566	586	605	624	644	648	652	655	658
48	84	86	101	136	170	203	240	246	254	283	312	326	340	362	384	470	558	578	598	618	637	657	662	666	669	672
49	85	88	103	139	174	207	245	251	259	289	318	333	347	370	392	480	569	590	611	631	651	671	676	680	683	686

50	87	90	106	142	178	212	250	257	265	295	325	340	355	377	400	490	581	602	623	644	665	685	690	694	697	700
51	88	92	108	144	181	216	255	262	270	301	331	346	362	385	408	499	593	614	635	656	678	699	704	708	710	714
52	90	94	110	147	185	220	260	267	276	307	338	353	369	393	416	509	605	626	648	669	692	712	718	721	724	728
53	92	96	112	150	188	225	265	272	281	313	344	360	376	400	424	519	616	638	660	682	705	726	731	735	738	742
54	94	98	114	153	192	229	270	277	286	319	351	367	383	408	432	529	628	650	673	695	718	740	745	749	752	756
55	95	99	117	156	195	233	275	283	292	325	358	374	390	415	440	539	639	662	685	708	732	753	759	763	766	770
56	96	100	119	159	199	238	280	288	297	331	364	380	397	423	448	548	651	674	698	720	745	767	772	776	780	784
57	98	102	121	162	202	242	285	293	303	337	371	387	404	430	456	558	662	686	710	733	758	781	786	790	794	798
58	100	104	123	165	206	246	290	298	308	343	377	394	411	438	464	568	674	698	723	746	772	794	800	804	808	812
59	102	106	125	168	209	251	295	303	314	349	384	401	418	445	472	578	685	710	735	759	785	808	814	818	822	826
60	104	108	128	171	213	255	300	309	319	355	391	408	426	453	480	588	697	722	748	772	798	822	828	832	836	840
61	106	109	130	173	216	259	305	314	324	360	397	414	433	460	488	597	708	734	760	784	811	836	842	845	850	854
62	108	110	132	176	220	263	310	319	329	366	404	421	440	468	496	607	719	746	772	797	824	849	856	859	864	868
63	109	112	134	179	223	267	315	324	335	372	410	428	447	475	504	617	730	758	785	810	838	863	869	873	878	882
64	110	114	136	182	227	271	320	329	340	378	417	435	454	483	512	627	742	770	797	823	851	877	883	887	892	896
65	112	116	138	185	230	276	325	335	345	384	423	442	461	490	520	637	754	782	810	836	864	890	897	901	906	910
66	114	118	140	187	234	280	330	340	351	390	431	448	468	498	528	646	766	794	822	849	877	904	911	915	920	924
67	115	120	142	190	237	284	335	345	356	396	437	455	475	505	536	656	778	806	835	862	891	918	925	929	934	938
68	116	122	144	193	240	288	340	350	361	402	443	462	482	513	544	666	790	818	847	875	904	931	939	943	948	952
69	118	124	146	196	244	292	345	355	367	408	449	469	489	520	552	676	802	830	860	888	917	945	953	957	962	966
70	120	126	149	199	248	297	350	361	372	414	456	476	497	528	560	686	814	843	872	901	930	959	966	971	976	980
71	121	127	151	201	251	301	355	366	377	419	462	482	504	536	568	695	826	855	884	913	943	973	980	984	990	994
72	122	128	153	204	255	305	360	471	382	425	469	489	511	544	576	705	838	867	896	926	956	986	994	998	1004	1008
73	124	130	155	207	258	310	365	376	388	431	475	496	518	551	584	715	849	879	909	939	969	1000	1007	1012	1018	1022
74	126	132	157	210	262	314	370	381	393	437	482	503	525	558	592	725	861	891	921	951	982	1014	1021	1026	1032	1036
75	128	134	159	213	266	318	375	386	398	443	488	510	532	566	600	735	872	903	934	964	995	1027	1035	1040	1046	1050
76	130	136	161	216	269	323	380	391	404	449	495	516	549	573	608	745	884	915	946	977	1008	1041	1049	1054	1060	1064
77	132	138	163	219	273	327	385	396	409	455	501	523	546	581	616	755	895	927	959	989	1021	1055	1062	1068	1074	1078
78	134	140	165	222	276	331	390	401	414	461	508	530	553	588	624	765	907	939	971	1002	1034	1068	1076	1082	1088	1092
79	136	142	167	225	280	336	395	406	420	467	514	537	560	596	632	775	918	941	984	1015	1047	1082	1090	1096	1102	1106
80	139	144	170	228	284	340	400	412	425	473	521	544	568	604	640	785	930	964	996	1028	1060	1096	1104	1110	1116	1120
	1003	1004	1005	1006	1007	1008	1009	1010	1011	1012	1013	1014	1015	1016	1017	1018	1019	1020	1021	1022	1023	1024	1025	1026	1027	1028

CREATINE AND CREATININE.

I have, in a previous paper, described these substances, and stated that their source was in the disintegration of muscular tissue. I shall here mention, that an increase of both is noticed in urine during continued animal diet, active muscular exercise, in acute affections—pneumonia, typhus, and intermittent fever. Several observers, as Voit, Navorocke, and Meissner, found that increased muscular exercise, without disintegration of muscular tissue, produces no increase in the amount of creatinine; and the observations of H. Senator on this constituent in the urine of two cases of tetanus, published in Virchow's "Archive," Bd. 48, only confirms their statement. Hoffmann states that pure local affections do not influence the quantity. He noticed an increase in the febrile affections, hand in hand with the emaciation of the patient.

The quantity, according to the same observer, was diminished during fasting, in a faulty nutrition of the system, and during convalescence from acute affections.

The separation of creatine and creatinine is effected by the following process, proposed by Liebig: Treat the urine with lime-water and chlor. of calcium to precipitate the phosphates, filter the liquor and separate the crystalline inorganic salts by evaporation. Treat the decanted liquor with chlor. of zinc, and allow it to stand for a few days; a mass of crystals will then be obtained, consisting of creatine and a triple compound of zinc and chlorine with creatine and creatinine. Dissolve the crystals in boiling water and treat them with hydrated oxide of lead until there is an alkaline reäction. Remove the oxide of zinc and chloride of lead by filtration; free the fluid from the lead and coloring matter by means of animal charcoal and evaporate to dryness. Treat the residue, which consists of creatine and creatinine, with boiling alcohol, which takes up the creatinine and leaves the creatine. The crystals under the microscope are colorless and beautifully transparent.

INCREASE AND DEFICIENCY OF URIC ACID AND THE URATES.

In speaking of normal urine (page 234 of this Journal), we have seen that uric acid exists in the form of urates, and that its presence can only be determined by adding a strong mineral acid, which decomposes the urates and liberates the uric acid; this being but slightly soluble, is gradually thrown down in a crystalline form. I have pointed out (page 243 of this Journal) that this change takes place, occasionally, only a few hours after the urine has been voided, in consequence of the presence of a free acid (as lactic acid). Hoffmann states that the acid phosphate of soda decomposes the urates.

A deposit of uric acid or the urates should induce the physician to make an examination in order to determine to what extent their deposit is consistent or inconsistent with the amount of uric acid eliminated. A sediment does not always prove an excess of uric acid; an analysis only will reveal the amount of uric acid present. In this connectien I may state, that the deposit may be caused: 1. By an increase of acidity sufficient to take the base from the uric acid. 2. By an insufficient amount of water to hold the urates in solution. 3. By a low temperature, since they are more soluble in warm than in cold weather. A deposit produced by any or all of these three causes, need not contain an excess of uric acid.

The following Tests will enable the physician to estimate the quantity of uric acid:

If the deposit consists of crystalline uric acid, wash dry and carefully weigh it. In order to insure success, it is well to acidulate (as recommended by Neubauer) 200 c.c. of urine with 5 c.c. of hydrochloric acid; set the mixture aside at a low temperature for about three or four days; this will give sufficient time for the separation of the uric acid. The deposit is to be treated as above, and the amount compared with that contained in normal urine. The average amount of uric acid excreted in twenty-four hours is about 8.569 grains. The range, according to Parkes, between the maximum and minimum amount is as great as from 20 to 30 per cent.

"The characteristic reäction of uric acid is furnished by the murexide test. A few drops of nitric acid are mingled with the suspected deposit in a capsule, and the mixture is slowly evaporated nearly to dryness over a lamp; a drop of ammonia is then added, which produces instantly a rich purple—Dr. Prout's purpurate of ammonia." [Da Costa.] The microscope is a reliable and ready mode of discriminating the uric acid from the water. The crystals have already been described (page 234 of this Journal) as transparent rhomboidal plates, or oval laminæ with pointed extremities, and it has been stated that they will vary both in size and form, according to the time occupied in their formation. The urates are seen to be either irregular amorphous particles, needle-like crystals, or round globules of varying size, from which fine needles project.

The following is an Improved Method of Estimating the Uric Acid by Iodine, devised by Dr. De Chaumont, and published by him in 1864. The method is based upon the fact that solution of iodine is decolorized by uric acid in a definite proportion, which appears to be four equivalents to one of uric acid. The solutions required are as follows:

(1) A standard solution of iodine. The alcoholic tincture being liable to change, it is best to dissolve the iodine in water with the aid of iodide of potassium; thus, 6.35 grammes (= 1-20th of an equivalent) of iodine, with 12 grammes of iodide of potassium, are dissolved in a litre of distilled water. Of this solution, 1 c.c. contains .00635 of iodine, and will decompose .0021 of uric acid. If the materials be accurately weighed and measured, it will be unnecessary to graduate the solution; but should this be desired, then the following solutions must be prepared: (2) Of uric acid, 168 grammes are to be dissolved in a litre of water. Of this solution, 12.5 c.c. will completely decolorize 1 c.c. of the solution of iodine; (3) a solution of starch carefully filtered and free from suspended grains.

The Process.—(1) Filter the urine from mucus; (2) acidify the urine, should it be alkaline, with acetic acid; (3) put 10 c.c. into a beaker glass and dilute it to 50 c.c. with distilled water; (4) add 5-10ths c.c. of starch liquor; (5) drop in the solution of iodine from a burette graduated to 1-10th c.c.; (6) stir each time, and wait till the blue color disappears; (7) do not add more than 1-10th c.c. at a time; (8) when the blue color has remained permanent for an hour, read off the number of c.c. of iodine used, and multiply by .21, which will give the quantity per litre.

Example.—10 c.c. of urine required 3.5 c.c. of iodine.

$3.5 + .21 = .735$ grammes per litre.

For a more accurate analysis, it is necessary to wait for twenty-four hours, until all the uric acid is decomposed, taking care to add fresh portions of starch from time to time as it becomes converted into dextrine. A correction is then applied as follows: (1) Precipitate the salts with Liebig's baryta solution [see process for urea]; (2) filter and acidify with acetic acid; (3) test with iodine as before; (4) deduct the number of c.c. used after the baryta from the gross amount first used, and from the remainder calculate the uric acid as before.

Example.—10 c.c. of urine took 3.5 c.c. of iodine. 10 c.c. so precipitated, filtered, and reäcidified, took .45 c.c. of iodine.

Then $3.5 - .45 = 3.05$ c.c. of iodine.

$3.05 + .21 = .6405$ grammes in a litre, the net result.

Uric acid, like urea, is the product of the metamorphosis of tissue, and its increase and diminution in disease goes, with few exceptions, hand in hand with urea. In health, it is increased by continued nitrogenous food, and still more influenced by an exclusive animal diet. It is diminished during fasting, and increased after a heavy, indigestible meal. Before pointing out the pathological relation, I should state, that frequently the deposit of uric acid or the urates, either while yet retained in the bladder or soon after the urine is voided, is due to acid fermentation, which may have been going on in the urinary passages. [See page 243.] It is also believed that endosmotic influences may render the urine so concentrated as to permit of the precipitation of uric acid or the urates.

The most frequent cause, however, is an actual increase of the "acid phosphate of soda" (frequently met with in persons of intemperate habits, or suffering from gastric disorders and hepatic affections). The precipitation of uric acid, either in the kidneys, ureters, or bladder, may become the nuclei for renal or vesical calculi. Persons in whose urine (when voided) concretions of a red color are found, are liable to a "*fit of the gravel.*" The red color is diagnostic of the sediment being uric acid or the urates.

The quantity of uric acid is increased during the paroxysm of intermittent fever, and in most of the active febrile and inflammatory affections. In affections in which the spleen is implicated, it exists in that organ in considerable quantity. In typhus and typhoid fever, variola and scarlatina, it is increased, and decidedly so in pneumonia. The sediments of uric acid or the urates are most abundant in the latter affection from the seventh to the thirteenth day. In cardiac affections, in cirrhosis, leucocythæmia, and rheumatism, it is increased, especially in the latter disease, since the red little granules, visible to the naked eye, form a deposit, soon after the urine is discharged.

Uric acid is diminished in almost all chronic affections, in diabetes mellitus, and the advanced stages of Bright's disease; in fact, in all diseases where the eliminating power of the kidney is interferred with. It is also lessened during the administration of large doses of quinine. During gout, uric acid is not eliminated, but the excretion of urea goes on. Dr. Garrod has proven that in this affection an excess of uric acid exists in the blood, and he regards this morbid condition as sustaining a special causative relation to the phenomena of gout. The question arose, whether this excess was owing to an accumulation from insufficient excretion, or whether uric acid was produced in too large quantity in the system. Both explanations are held applicable by Dr. Garrod. He also believes that a reduction of the alkalinity of the blood will favor the deposition of the urates around the joints. Flint very properly terms this excess of uric acid in the blood, in the form of urates, "Uricæmia."

The Pathology of the Urates is the same as that of uric acid.

They have been described as urates of soda and ammonia, and urate of lime and magnesia. The deposit formed by their precipitation is either of a pink, brick-red, or purple color; sometimes, however, they are brown (clay color) or even white. The simplest test to distinguish them from uric acid, is their solubility when heated, and their decomposition by mineral acids. The microscope shows them either as irregular amorphous particles, needle-like crystals, or round globules of variable size, from which occasionally fine needles project. The latter are commonly supposed to be urate of soda; the globules and crystals urate of soda and ammonia; the fine powder, urate of lime and soda.

But these are not positive facts. We only know that the granular amorphous deposit, until lately called urate of ammonia, actually consists of the mixed urates, especially of urate of soda and ammonia. These amorphous urates may, under the microscope, be mistaken for the phosphate of lime. Acids will decide the question. The phosphate is dissolved by acetic or hydrochloric acid, while the urates are gradually transformed into crystals of uric acid. A deposit of phosphate of lime is often more cloudy and less defined than the urates, and unlike them, not soluble in liquor potassæ. From carbonate of lime, which also occurs in a granular form, both urates and phosphates of lime are distinguished by the effervescence of the carbonic acid which happens on the addition of a strong acid. (Da Costa.)

Urine containing a sediment of urates is generally very acid, or soon becomes so, either from an absolute increase of the uric acid, or in consequence of changes in some of the constituents of urine. I have pointed out (page 243 of this Journal) that a free acid may be developed, and Vogel states that the pigments materially influence this production; that the deposition of the urates is often due to an insufficient amount of water to hold them in solution. We can easily satisfy ourselves by ascertaining the amount of urine passed during the twenty-four hours.

If the quantity is normal, the deposit is most likely due to an excess of urates. The atmospheric influence has also been spoken of; it is a well known fact, that the urates are more soluble in warm water than in cold, and that urine well saturated with the urates will permit of their precipitation, as soon as the temperature is diminished, below that of the body. But sediments of urates are encountered irrespective of these conditions. They are met with in pale urine, and without either diminution of water or excess of acidity to account for their presence, the urine being of a faint acid or neutral reäction, and under these circumstances phosphate of lime, or even triple phosphates, may be observed to accompany the urates.

The Therapeutical Indications, whether the deposit consists of an excess of uric acid or of the urates, remain the same. In this as in other conditions, the cause should be ascertained and rectified. When the excess is due to indulgence in animal food, its mal-assimilation, etc., the treatment consists in regulating the diet. When due to defective cutaneous excretion (and very frequently it is), the action of the skin must be promoted by clothing, cold baths in the morning, and friction with horsehair gloves; the diaphoretics are also indicated. [That defective cutaneous excretion is a fruitful cause of an excess of uric acid in the urine, may be explained by the fact, that the surface of the body rids the system of certain organic matters rich in nitrogen, and that whenever this function is interfered with or arrested, the kidneys are called on to carry these substances off in the form of urates.] The introduction of alkalies into the blood to hold the urates in solution, and a plentiful supply of pure water, are naturally indicated, particularly in the cases where the excess of uric acid is due to metamorphosis of tissue, as in most febrile affections. We can not there attempt to treat the cause or cut short the paroxysms, but must be satisfied to promote proper elimination from the system, and prevent precipitation in the urinary passages. Whenever sediments are known to be caused by "*acid fermentation*" within the system, that cause is to be considered in the treatment. The treatment, as will be observed, is to prevent the formation of calculi, and as directed to the removal of the prime cause of the lithic acid diathesis.

THE PHOSPHATES.

In speaking of their physiological nature (page 236 of this Journal), we learned their source, that they are kept in solution by the acidity of the urine, and that they are deposited as soon as the fluid ceases to be acid; it can therefore be asserted that the appearance of the phosphates goes hand in hand with a neutral or alkaline condition of this urine.

On pages 232–233 of our previous paper, we pointed out the formation of double salts, due to the decomposition of urea into carbonate of ammonia. We can therefore account for the presence of the triple phosphates in heavy deposits, mixed with mucus or pus in certain conditions of the bladder, as chronic catarrh, retention of urine in low fevers, hemiplegia or paraplegia, from the fact that they are the result of changes which have taken place during the decomposition of urine in the bladder. The causes which may lead to a sediment of the phosphates, are those which produce an alkaline condition of the urine generally; they have been pointed out. (Pages 236 and 237.)

We often find urine alkaline from a fixed alkali depositing phosphates, and we can not account for it by an undue introduction of alkalies into the system. This is the condition so frequently met with in anæmic persons, whose nervous system are shattered, who labor under great debility and indigestion, and who are depressed by mental toil and anxiety; and these are the cases of whom it was common to speak as exhibiting the "*phosphatic diathesis.*"

This condition *may* be due to an excess of phosphates, but most frequently it is the want of acidity of urine, which permits their precipitation. Vogel seems to believe that diminished tissue changes will produce an alkaline condition of the urine. When it is remembered that uric acid is the product of the metamorphosis of tissue, and that in the cases above referred to, tissue changes must be more or less diminished, the theory is acceptable:

"An excess of the phosphates in these cases may be concealed until a careful analysis has been performed. This happens especially with the alkaline phosphates, the phosphate of soda and the ammonio-phosphate of soda, the proportions of which change in disease much more than do the earthy phosphates, and indicate much more clearly the variations of the phosphoric acid. And, parodoxical as it may appear, the acidity of the urine may be so much augmented by the increase of the phosphoric acid that a very large excess of alkaline phosphates may be present in solution in a highly acid urine."—Da Costa.

The elimination of the phosphates in excess, is either the result of an animal diet, the introduction of phosphates as remedies into the system, or of tissue changes, particularly of the nerve structures. Dr. Bence Jones found an actual increase of the phosphates in acute inflammatory diseases of the nerve structure during the existence of the most marked febrile symptoms, and in fractures of the skull when an inflammatory action takes place in the brain. In rickets and osteo-malacia, the phosphates, particularly the phosphate of lime, are found to be in excess in the urine. The quantity in many acute affections is first diminished and afterwards increased, but the variation is so great that no great value can be attached to it.

The amount of phosphoric acid is stated to be diminished during the course of a maniacal paroxysm, in epilepsy and in melancholia.

Microscopical and Chemical differences between the Earthy, the Alkaline and the Triple Phosphates.—The crystals of the ammonio-magnesian phosphate are perfectly colorless and transparent, and have the form of triangular prisms, generally with beveled extremities, or they may appear as feathery-looking bodies.

The phosphate of lime appears as an amorphous powder, or in round small globules. Both Drs. Roberts and Hassall have pointed out that it may exist in a crystalline form, and that under the circumstances it is difficult to distinguish it from the stellar forms of crystallization of uric acid; they are, however, invariably colorless, which is an important distinction. The earthy phosphates are readily soluble in acids, even in weak acids like acetic acid. In many specimens of urine they are precipitated by heat, but the addition of an acid soon dissolves them, and thus prevents the turbidity from being mistaken for that due to albumen.

The triple phosphates are found most abundant in alkaline urine, due to the decomposition of urea into carbonate of ammonia. Vogel states that their formation is impossible in urine alkaline from a fixed alkali, and that the sediment in such urine seems to consist entirely of the phosphate of lime.

To determine the proportion of the *earthy* phosphates, a few drops of ammonia are added to the urine, soon a whitish precipitate is produced which is not dispersed by heat. From the quantity of the deposit we may form a rough estimate of that of the "earthy phosphates." But if the amount is to be accurately ascertained, we must employ a graduated glass, separate the precipitated phosphates by filtration, ignite them in a platinum capsule and weigh the ashes. The "*alkaline*" phosphates are not thrown down by alkalies, and, unlike the earthy phosphates, are very soluble in water. They are procured by taking the fluid from which the earthy phosphates have been carefully removed by filtration, and adding to it a saturated solution of sulphate of magnesia.

The Process for the Estimation of Phosphoric Acid is based on the fact that when nitrate or acetate of uranium is added to a solution of tribasic phosphoric acid, containing acetate of ammonia and free acetic acid, the whole of the phosphoric acid is thrown down as double phosphate of uranium and ammonia, having a light brown color and a composition represented by the formula. $2\,(Ur_2\,O_3)\,NH_4\,O, PO_5 + Aq$. This volumetric method for the estimation of phosphoric acid was devised by Francis Sutton, of Norwich, independently of Neubauer and

Pincus, who, independently of each other, also arrived at the same process; but Mr. Sutton states that Neubauer was the earliest discoverer of the method. The standard test-solution required is the nitrate of uranium, of which 1 c.c. represents 0.1 grain of phosphoric acid. A solution of ferrocyanide of potassium (yellow prussiate of potash), in the proportion of 1 to 20 is to be used as an indicator to stop the process so soon as the reäction is complete.

The details of the process are as follows:

(1) Take the precipitate produced by the baryta solution in 40 c.c. of urine [as pointed out page 370, process of estimation of urea;] (2) wash the precipitate once with cold water; (3) treat it while still on the filter with warm acetic acid to dissolve all the phosphate of baryta which passes through the filter, leaving the sulphate behind; (4) wash the filter with a small quantity of boiling water so as to remove the last traces of phosphate; (5) add sufficient ammonia to the solution to neutralize the acetic acid, unless the quantity of the latter be large, when somewhat less than enough to neutralize may be added. Under any circumstances the liquid must be fully acidified with acetic acid before being tested as to its strength (triturated), and must contain a tolerable quantity of acetate of ammonia; (6) take a measured quantity of the urinary phosphate solution (say 20 c.c.) in a beaker and gently warm it, and bring it under the burette containing the uranium solution; (7) portions of the uranium solution are to be delivered in and constantly stirred, until, when a drop is taken out with a thin glass rod and placed in the middle of a large drop of the solution of the yellow prussiate of potash on a white plate, a faint but distinct chocolate-brown color is produced at the point of contact. A slight excess of uranium solution is required to produce the brown color, which indicates that all the phosphoric acid contained in the amount of urine in the beaker has been thrown down; (8) record the amount of uranium solution used and estimate accordingly—1 c.c. of the solution precipitating 0.1 grain of phosphoric acid.

[Collect all the precipitates in a large bottle, and when sufficient has been obtained, recover the uranium by igniting the dry precipitate in a porcelain crucible with the carbonaceous residue produced by burning tartrate of soda and potash in a covered crucible. The uranium is thus reduced to protoxide, while the phosphoric acid unites with potash and soda, and can be entirely extracted with boiling water. The protoxide of uranium left may be dissolved in nitric acid and evaporated to dryness in a water-bath.—Sutton's Volumetric Analysis, p. 208.]

The mean amount of phosphoric acid excreted in twenty-four hours is 3.164 grammes = 48.80 grains, with a range in the same person of from 35 to 50 per cent.—(See also table, p. 249 of this Journal.]

The Therapeutical Indications will vary with the nature of the case; it must be the aim of the physician to guard against the deposition of the earthy phosphates within the urinary passages; in the cases where there is only an apparent, not a real increase of the phosphates, the alkaline reäction of the urine is most probably the cause of their precipitation; this is to be further investigated, and the cause of the alkaline reäction rectified. The cases of "phosphatic diathesis" require a tonic treatment; the preparations of iron, zinc or strychnine, together with rest, change of scene, and above all a generous diet, are most beneficial. Anodynes too have an excellent effect in restoring the acid character of the urine by their quieting influence on the nervous system.

The mineral acids are indicated in all cases except where the alkalinity of the urine and the consequent deposit of the phosphates is due to fermentive action in the bladder, the result perhaps of chronic vesical catarrh. In these the alkaline bicarbonates will prove useful.

ART. II.—GUARANA. By FINLEY B. PUGH, M. D., Illinois, Graduate in Pharmacy.

PREFACE.

When I first selected "Guarana" as the subject for this paper, it was my intention to give it a thorough analysis according to "Rochleder," but I soon found that at least three things were necessary for a complete and satisfactory examination.

1. An abundance of material to work upon.
2. Sufficient apparatus of just the right kind to work with.
3. An unlimited amount of time.

Having none of these at my command, I abandoned the idea, and concluded to write up the history of the substance and its preparation and uses and its effect upon the system. For a great deal of the information in this article concerning "Guarana," I am indebted to a paper on the subject by Mr. J. Hallawell, read before the Liverpool Chemists' Association"; for its effect upon the system, to Dr. Johnston.

I take this method of returning thanks to Messrs. Parke, Davis & Co., manufacturing chemists, Detroit, for favors shown me; also for samples of the "Guarana" in "rolls," in powder, and the fluid extract. The latter is a very beautiful preparation, made by their new process for making fluid extracts.

"*Guarana,*" sometimes called "*Uarrana,*" also "*Narana,*" the latter name signifying *a climbing plant,* and the former, it is said, to have been taken from a tribe of aboriginees called "Guaranis." It is sometimes called paullinia, from the generic title of the plant from which it is obtained. It is also known as Brazilian cocoa. This substance is prepared by the South American Indians from the seeds of paullinia sorbilis, a climber belonging to the class and order octandria trigynia of the Linnæan system and the natural family of the sapindaceae or soapwort order, growing in Brazil; it is also abundant in the province of Amazonas, along the banks of the Tapajos, Rio Negro, etc., as well as in Guiana and Venezuela. The characteristics of this family are: Usually large trees or twining shrubs, or rarely climbing herbs. Leaves generally compound, rarely simple, alternate or sometimes opposite, often dotted, stipulate or exstipulate. Flowers mostly perfect and unsymmetrical, sometimes polygamous, sepals 4–5 either distinct or coherent at base, imbricated. Petals 4–5 rarely none, hypogynous, alternate with the sepals, imbricated, naked or furnished with an appendage on the inside. Stamens 8–10, rarely 5, 6, 7, or very rarely 20, inserted into the disk or into the thalamus; filaments distinct or slightly monodelphous; anthers introrse bursting longitudinally. Disk fleshy or glandular. Ovary usually 3-celled, rarely 2 or 4-celled, each cell containing 1, 2, 3, or rarely more ovules; style undivided or 2–3 cleft. Fruit either fleshy and indehiscent; or capsular or samaroid, with 2–3 valves. Seeds usually arillate, exalbuminous; embryo rarely straight, usually curved or twisted in a spiral direction; cotyledons sometimes very large; radical next the hilum.

Diagnosis.—Flowers unsymmetrical, hypogynous. Sepals and petals 4–5 imbricated, the latter commonly with an appendage. Stamens never agreeing in number with the sepals and petals, inserted on a fleshy or glandular disk, or upon the thalamus; anthers bursting longitudinally. Fruit usually consisting of 3 carpels. Seeds commonly 2, sometimes 1 or 3, or very rarely more, exalbuminous, usually arillate and without wings; embryo almost always curved or spirally twisted.

Distribution and Numbers.—Plants of this order are chiefly found in tropical, regions, especially those of South America and India. Some occur in temperate climates, but none inhabit the cold northern parts of the globe. There are no native plants of this order in Europe. The horse-chestnut, now so well known in this country and in Europe, is only naturalized amongst us. The red and sugar maple, familiar to all of us, are members of this family. There are nearly four hundred species.

Properties and Uses.—One of the most prominent properties of the plants of this order is the presence of a saponaceous principle, from which its name is derived. Many are poisonous in all their parts; but it is more frequently the case that, while the root, leaves, and branches are dangerous, the poisonous juice becomes so diffused throughout their succulent fruits as to render them innocuous, or in several instances, even valuable articles of dessert

It sometimes happens, as in the Richie and Longan fruits, that, while the pericarp is wholesome, the seeds are dangerous. Some plants of the order are astringent and aromatic; others are diaphoretic, diuretic, and aperient; and some are valuable timber trees.

Paullinia Sorbilis, in a wild state, grows to a height of from ten to twelve metres (or about thirty-six to forty feet), but its seeds are only used by the natives. Those of the *cultivated* plant are reserved exclusively for the preparation of guarana for market. The plant is best propagated from the cuttings, but may also be grown from the seed. It produces fruit from the third year after planting, and thenceforward requires to be pruned precisely as a vine. It flowers in July, and the fruit is ripe in November. The fruit is said to be nearly as large as a walnut, and contains five or six seeds. This is one of the rare specimens of the family, for you will remember that the fruits of plants of this order commonly have but two or three seeds. By careful cultivation, each stem will furnish four kilos, or about nine pounds of seed annually, and will live for forty years. The fruit of the plant cultivated in the neighborhood of Mauké is preferred. Topiriambaranas had, for a long time, the monopoly of the production of guarana, but subsequently it was found at Moxos and Chiquitos, and lastly at Villa Boa. The Manchées prepare it as follows: They remove the seeds from the capsules in November and dry them in the rays of the sun. After having slightly roasted them over a charcoal fire, they reduce them to a fine powder in stone mortars or in stones hollowed for the purpose; they then moisten the powder with a little water and expose it to the dew by night. In this way they produce a hard paste, often increased in bulk by mixing seeds and fragments of seeds. They afterwards roll it into cylinders of twelve to sixteen ounces each, rounded at each extremity. These cylinders or rolls are dried in the sun or in the chimneys of their huts. They are sometimes called "guarana bread." They measure ten to twenty centimetres (four to eight inches) in length, and three to five centimetres (or one and a quarter to two inches) in breadth. In appearance they strongly resemble a Bologna sausage. These cylinders are so hard that they have to be broken with an axe, or reduced to powder by means of a rasp. The different manipulations by which the mass is rendered hard conduce to its preservation in a perfect state for many years.

For exportation, the cylinders are enveloped in cocoa-nut leaves and packed in baskets; and in this form guarana appears in the European markets, though it is said that the samples sent from the Province of the Amazons to the Paris Exhibition resembled pine-apples in form. The seeds are very difficult to procure. Silva Continho says that the Indians previously macerate the fruit in water, that they may the more easily detach the pericarp from the seed. From the former (the pericarp) they make a yellow pigment. The fruit also furnishes them with a red coloring matter, with which they dye their teeth.

Guarana is not generally exported in a state of great purity, either being sometimes prepared from seeds in a state of fermentation, or mixed with cocoa-berries or tapioca flour; and it is generally agreed that seeds in a state of fermentation give a product of inferior quality. However, it was stated in the "Brazilian Catalogue" of the Paris Exhibition, that the mass of "guarana prepared and moistened, ought to be submitted to a slight fermentation." But the different manipulations to which the seed are submitted, during which the mass is dried three times, would seem to at least assist in preventing the fermentation of the preparation. It is asserted by Pecholt, that the substance of the seeds alone is not sufficient to produce a firm mass, and that the Indians, to obtain this result, are obliged to add tapioca flour.

Jules Wiesner is not, however, of this opinion, and he brings, as proof of his views, facts which it is in the power of every one to verify. He says: "At first sight, one might think that the hard, compact mass of the cylinders of guarana no longer possess the organic structure of the seeds. It is not so. If we immerse a morsel of guarana in distilled water, the mass will give to the water a brownish color, which changes to a kind of light pulp, from which the bulkier grains separate. If this matter be spread out and examined by the microscope, it will be seen clearly that the grains and fractions of grains are nothing more than fractions of seeds, readily recognized by their alveolar texture, and that the earthy portion of the mass represents well-defined histological elements. Amongst all the samples I have analyzed, I have not found one mixed with tapioca. It is then an error to suppose that that substance is necessary for the preparation of the mass of guarana."

This conclusion seems to be a very correct one, for we have the authority of Prof. Wiesner, who has had much experience with, and has examined a great many samples of guarana.

We have made a microscopic examination of two different samples, in the manner mentioned by Prof. W., and were able to distinguish the fragments of seeds.

Guarana, perfectly pure when fractured, has a marbled appearance, or rather the appearance of a piece of Mosaic work, generally of a darkish or reddish brown color. The surface is of a shiny or greasy appearance, and the structure amygdaloid. In the middle of somewhat uniform masses are embedded smaller morsels of two to three millimetres in diameter (one-twelfth to one-eighth inch) of which some are of a darker and others of a lighter shade than the mass itself. Almost all of these are covered over with a whitish layer, not clearly definable. The substance is very hard, and is crushed with difficulty in a mortar. The powder is of a bright brown or cinnamon color, but with very little smell. But when it has been closely corked up for some time, or when it has been left a few instants in contact with the sides of a hot vessel, it acquires a peculiar odor. Heated slightly in the open air, it has the smell and taste of roasted coffee.

Guarana in a mass has the bitter styptic taste of the cocoaberry; it softens in the water, giving the liquid a brownish color, while the insoluble portions lose little by little all their color in the menstruum. The distillate from a decoction of the substance, after standing a short time, has the odor of raw coffee.

True guarana is distinguished from the inferior qualities by its greater hardness and specific gravity; the powder being of a reddish gray, whilst that of the sophisticated product is of a whiter appearance. Guarana is for the Indians, at the same time, an indispensable aliment and a universal remedy.

They live almost entirely on what is called "agua branca," a mixture of the powder and cold water, somewhat resembling chocolate. They reduce the mass to powder by means of a particular kind of fish bone or by sharp stones. The Indians have all the appearance of the freshness and vigor of those who live on animal food. They make use of it, medicinally prepared, with great success in the cases of diarrhœa and dysentery, so frequent and so serious in their country; and in convalescent stages it is used as a tonic and stomachic.

The Brazilians and the civilized Indians learned from the Manchées the value of guarana, and at first bought it at very high prices. They employ it for the same purposes, modifying its bitter and styptic taste by means of sugar. It is now found in several Pharmacopœias. I have noticed it in the German Pharmacopœia. It is classed amongst the non-officinal preparations in the United States Dispensatory. It is considered specially efficacious in sick headache. Something over a year ago it was introduced into this country. It has been my privilege to see its effects in several cases of sick headache, and in each case it acted very efficiently and promptly; but I have searched the journals (American) in vain for cases treated by it; in fact, it has not come into very general use as yet.

Martius was the first to introduce this substance to us in his work, "Travels in the Brazils." Since then, many authors have noticed it, amongst others, Gavarelle, Petzholt, and Silva Contino. The subject, abandoned for a time, was taken up again by Jules Wiesner, who published a remarkable notice of it in the "Ausland." Dr. Wilkes, of Guy's Hospital, has communicated to the "British Medical Journal" a series of observations that leave no doubt as to the active properties of guarana. Dr. Leconte adds: "We were not at all surprised at the results obtained by Dr. Wilkes. We were cognizant for a long time before of the properties of guarana. In our hands, it has rarely failed, and we are convinced that its success is certain, if it is employed pure and without any admixture or adulteration."

Dechastelus has found in guarana the following substances: Gum, starch, a resinous matter of a reddish brown color, a fatty oil, colored green by chlorophyll, tannin, coloring solutions of iron, green, or more definitely mimotannic acid, the same as that found in the different species of catechu and of kino, also a crystallizable substance containing the chemical properties of caffeine.

More recent analysis by Trommsdorf, Petzholt, and Stenhouse have shown that the crystallizable substance alluded to by Dechastelus, is identical with the alkaloid of tea and coffee. These chemists have found, in addition, saponine, carbonates, phosphates of soda, potassa, and lime.

M. Fournier gives as the result of his analysis of guarana, besides tannate of caffeine, the following principles: Gum, starch, an acrid, green fixed oil, a concrete volatile oil, scarcely soluble in water; a peculiar principle not precisely determined, and tannic acid. Although caffeine, theine, and guaranine are identical in chemical composition, all having the formula: [($C_8 H_{10} N_4 O_2. H_2 O.$) (hydrous) and ($C_8 H_{10} N_4 O_2.$) (anhydrous.)] It seems more proper and convenient to apply to each their separate name, for in this way we are enabled to know the source of our alkaloid from its name, and if we apply the name *theine* to the alkaloid from tea, and *caffeine* to that from coffee, why not *guaranine* to that from guarana? As guaranine is probably the most important constituent of guarana, and the substance to which it chiefly owes its action, it might be well here to consider it.

In 1821 the bitter principle of coffee, which had hitherto been known only in the impure state, was first prepared in the pure crystallized form by Pelletier and Caventon, Robiquet and Runge. In 1838 Mulder and C. Tobst discovered simultaneously that theine, discovered by Oudry in 1827, is identical with caffeine, as Berzelius had already suggested. In 1840 the guaranine of Dr. Theodore Von Martius was recognized both by its discoverer and by Berthemot and Dechastelus as likewise identical with caffeine.

I have found four processes for the preparation of guaranine from guarana: 1st. Guarana mixed with three-tenths its weight of burnt lime is repeatedly boiled with alcohol of 33° Beck; the filtrate evaporated a little; the greenish fatty oil which separates on cooling is separated; the residual alcoholic liquid completely evaporated, and the dry residue heated; guaranine then sublimes, at first yellowish white and afterwards quite white.—[Martius.]

2. Pulverized guarana is exhausted with boiling alcohol, the liquid filtered, the alcohol distilled off and water added, which separates a greenish oil; this is removed and the liquid evaporated to dryness.—[Berthemot and Dechastelus.]

3. Twenty-five grammes of guarana are very finely powdered, and boiled with one quart of distilled water for some time. When cold a slight excess of basic acetate of lead is added, when a bulky brownish red precipitate falls. This is repeatedly digested with hot water, and the clear liquid which passes through the filter is treated with a slight excess of sulphuretted hydrogen till all the lead present in it is precipitated. The clear solution is evaporated to dryness on the water-bath, and the residue dissolved in a small quantity of boiling alcohol and filtered. The filtrate is allowed to evaporate nearly to dryness, when yellowish-colored crystals are deposited. These are pressed between folds of bibulous paper and re-crystallized out of spirits of wine, when they are rendered perfectly colorless. After

being dried on the water-bath they are weighed.—[Stenhouse.]

By this process Dr. Stenhouse obtained from 25 grammes of guarana 1.260 grammes of guaranine = 5.04 per cent., and from 14 grammes 0.715 grammes = 5.1 per cent., average of two determinations 5.07 per cent. This is the only process I have employed, and from 25 grammes of guarana I obtained 0.917 grammes of guaranine = 3.60 per cent. I am confident, however, that with more careful work I could have obtained more of the alkaloid. Still I feel that this is not only a tedious, but somewhat unsatisfactory process, attended with some difficulties—e. g., the precipitate produced by the sub-acetate of lead is very bulky and difficult to filter out, and it is better to let it subside, and decant off as much of the liquid as possible, then filter again. It requires considerable time to remove the excess of lead from the filtrate. Although I was not able to test it, (for the reason that I could obtain no pure benzole), I think the procses recommended by John Williams, F. C. S., altogether preferable, which he says he found in every way satisfactory. It is as follows:

4. Guarana reduced to a fine powder is mixed with one-third of its weight of hydrate of lime and moistened with water. After an hour or two it is placed in a drying closet, and completely dried at a moderate heat; this is exhausted with boiling benzole filtered, and the benzole distilled off, when a small quantity of light colored, oily water is left. This is treated with boiling water, and the whole digested over the water-bath, until all traces of benzole have been dissipated, then filtered through a wetted filter, so as to keep back the oil; the aqueous portion evaporated to a small bulk, and set to one side for 24 hours, yields the guaranine white and pure, in fact requiring no further purification of any kind. A sample of guaranine made by this process was exhibited before the "Liverpool Chemists' Association," and was highly praised. According to Dr. Stenhouse, guarana is the richest known source of this alkaloid, as will be seen by the following table:

	Per cent. of Theine.
Guarana	5.07
Good black tea	2.13
Black tea from Kemaon, E. I.,	1.97
Various samples of coffee-beans from 0-8 to	1.00
Dried coffee leaves from Sumatra	1.26
Paraguay tea, from Ilex Paraguayensis	1.2

According to Peckolt, the seed shells of paullinia sorbilis contain 2.443 per cent. guaranine; the shelled seeds, 4.813 per cent.; the pulp, 4.288 per cent.

Caffeine or Guaranine occurs in long, flexible, silky needles; it has a slightly bitter taste, and is sparingly soluble in cold water and in alcohol; both boiling water and ether dissolve it in considerable quantity. The crystals deposited from alcohol and from ether are anhydrous. Caffeine fuses when heated, and at a higher temperature it may be sublimed without decomposition. It also forms crystallizable salts with many bases. It is a compound which presents a high degree of interest, both from the metamorphoses of which it is susceptible and from the circumstance that it affords an ingredient in four substances; viz., the coffee and tea plants, the Paraguay tea, and the paullinia sorbilis. One or the other of which constitutes a portion of the daily diet of three-fourths of the human race.

The fact of its discovery in these different plants belonging to distinct natural families, is a highly interesting result of recent chemical investigations. That these different shrubs should have been selected by different nations for the purpose of yielding a beverage, when infused with boiling water (and in the case of paullinia with cold water) shows that the ingredient which they furnish is one which is adapted in a special manner to some craving of the human frame. The use of coffee as an article of diet appears to exercise an important influence in retarding the waste of the tissues of the body, since it was observed that during its use the proportion of phosphoric acid and of urea excreted by the kidneys was much smaller than when the coffee was omitted, the diet being in all other respects the same in both cases. When a solution of pure caffeine was substituted for the ordinary infusion of coffee, similar alterations were produced in the quality of the urine, hence it was concluded that caffeine, likewise, exerted a power of retarding the disintegration of the constituents of the animal frame.

Dr. Johnson says: "The beverages we infuse naturally arrange themselves into three classes. 1st. The teas or infusions of leaves. 2d. The coffees or infusion of seeds. 3d. The cocoas, which are more properly soups or gruels than simple infusions. The infused beverages are drunk hot, fermented drinks are usually taken cold. The love of such warm drinks prevails almost universally. In frozen Labrador and snowy Russia, the climate might account for this predilection, but the craving is really deeper seated. The practice prevails equally in tropical and arctic regions. In Central America the Indian of native blood and the Creole of mixed European race, indulge alike in their ancient chocolate. In Southern America the tea of Paraguay is an almost universal beverage. The native North American tribes have their Apalachian tea, their Oswego tea, their Labrador tea, and many others. From Florida to Georgia, in the United States, and all over the West India Islands, the naturalized European races sip their favorite coffee; while over the Northern States of the Union, and in the British Provinces, the tea of China is in constant and daily use. All Europe, too, has chosen its prevailing beverage; Spain and Italy delight in chocolate; France, Germany, Sweden, and Turkey in coffee; Russia, Holland and England in tea—while poor Ireland makes its warm drink of the husks of cocoa, the refuse of the chocolate mills of Italy and Spain. All Asia feels the same want, and in different ways has long gratified it. Coffee, indigenous in Arabia or the adjoining countries, has followed the banner of the prophet wherever in Asia or Africa his false faith has triumphed. Tea, a native of China, has spread spontaneously over the hill country of the Himalayas, the table lands of Tartary and Thibet, and the plains of Siberia; has climbed the Altais, overspread all Russia, and is equally despotic in Moscow as in St. Petersburg. In Sumatra, the coffee leaf yields the favorite tea of the dark-skinned population, while Central Africa boasts of the Abyssinian 'chaat' as the indigenous warm drink of its Ethiopian peoples." And we may add, the South American Indians delight in and almost entirely subsist upon their guarana.

"Everywhere unintoxicating and non-narcoctic beverages are in general use. Among tribes of every color, beneath every sun, and in every condition of life. The custom, therefore, must meet some universal want of our poor human nature."

The effects of tea, as it is used in China, are thus described by Chinese writers: "Tea is of a cooling nature, and if drunk too freely, will produce exhaustion and lassitude. Country people, before drinking it, add ginger and salt to counteract this cooling property. It is an exceedingly useful plant; drink it, and the animal spirits will be lively and clear. The chief rulers and nobility esteem it; the lower people, the poor and beggarly, will not be destitute of it. All use it daily and like it." Another writer says: "Drinking it tends to clear away all impurities, drives off drowsiness, removes or prevents headache, and it is universally in high esteem."

Tea, as used among us, is known to exhilarate without sensibly intoxicating. It excites the brain to increased activity and produces wakefulness; thence its usefulness to hard students, to those who have vigils to keep, and to persons who labor much with the head. It soothes, on the contrary, and stills the vascular system, and hence its use in inflammatory diseases and as a cure for headache. Its exciting effect upon the nerves makes it useful in counteracting the effects of opium and of fermented liquors, and the stupor sometimes induced by fever. And we would suggest guarana as a good substitute; for in these cases the effect seems to be chiefly due to the alkaloid, and it is much more abundant in guarana, as we have already seen. Indeed, Prof. Campbell, of Georgia, (in the "Southern Med. and Surg. Jour." for May, 1860,) reports a case of a young man 24 years old, who, in a fit of mental depression, swallowed an ounce and a half of laudanum, to whom he administered 20 grs. of caffeine in an infusion of coffee, and in a short time the young man recovered. He thinks the caffeine had much to do with his recovery, and recommends it highly in cases of poisoning by opium.

Theine, Caffeine, or Guaranine, have no smell, and only a slightly bitter taste. It has little to do, therefore, either with the tastè or flavor of the substance from which it is extracted. It is remarkable, however, in three respects: 1. In containing a very large percentage of nitrogen. The composition of the dried alkaloid is represented by the following numbers:

Carbon,	49.80
Hydrogen,	5.08
Nitrogen,	28.83
Oxygen,	16.29
	100

It contains, therefore, nearly three-tenths of its weight of nitrogen; a proportion which exists in only a very small number of other known substances.

2. It is remarkable as being present not only in Chinese tea, but also in Maté or Paraguay tea, in coffee, and in guarana; and again, we say, it is a very curious fact, that in countries so remote from each other, plants so very unlike as all these are, should have been, by a kind of instinct, as it were, selected for the same purpose of yielding a slightly exciting, exhilarating, and refreshing beverage; and that these plants, when now examined by chemists, should all be found to contain the same remarkable compound body, which we call theine, caffeine, or guaranine. The selection must have been made by the independent discovery in each country, and by each people, that these several plants were capable of gratifying a natural craving or of supplying a want equally felt by all.

3. The observed effects of this substance, when introduced into the system, justify this conclusion, and form the third point, which is worthy of remark in regard to it. It is known that the animal body, while living, undergoes constant decay and renovation. The labors of life waste it; the food introduced into the stomach renews it. That which is wasted passes off

through the lungs, the kidneys, the alimentary canal, the skin, or is in other ways rejected from the body of the animal. The solid matters contained in the urine are in some degree a measure of this waste; and especially the quantity of urea and phosphoric acid it contains, at different periods, is supposed to measure the comparative waste of the tissues at these different times.

Now, the introduction into the stomach of even a minute proportion of this alkaloid—three or four grains a day—has the remarkable effect of sensibly diminishing the absolute quantity of these substances voided in a day by a healthy man living on the same kind of food and engaged in the same occupation under the same circumstances. This fact indicates that the waste of the body is lessened by the introduction of this alkaloid into the stomach—i. e., by the use of coffee, tea, or guarana. And if the waste be lessened, the necessity for food to repair it will be lessened in an equal proportion. In other words, by the consumption of a certain quantity of coffee, tea, or guarana, the health and strength of the body will be maintained in an equal degree upon a smaller supply of ordinary food. These substances, therefore, save food; stand to a certain extent in the place of aliment, while at the same time they soothe the body and enliven the mind by their tonic happyfying, yet harmless action upon the nervous system. Hence they are the poor man's friend, while they are the rich man's solace. In the old and infirm it serves also another purpose; for, in a majority of cases, there comes a time in their lives when the stomach no longer digests enough of the ordinary elements of food to make up for the natural daily waste of the bodily substance. At this period the substances we have mentioned come in as a medicine to arrest the waste, to keep the body from falling away so rapidly, and thus to enable the less energetic powers of digestion still to supply as much as is needed to repair the wear and tear of the solid tissues.

The introduction of guarana has been attributed to several sources, but it is altogether probable that its medicinal value was discovered by the Indians, who are said to differ greatly in their habits from the Indians of the Northern hemisphere; while the latter are idle and care for little else but hunting, the former are a quiet, industrious race, living in a country especially rich in medicinal agents, the names of many of which are unknown to us. Formerly, it was a common thing for the Indians to travel thousands of miles with a collection of these medicines to sell their "specifics" in the towns and villages of the whites; amongst these was "guarana," which, on account of its superior merit, claimed special attention, and thus became known. It was sought for and procured, but until recently, in very small quantities, and could only be bought at a very high price. As the demand increased, the supply was found to be readily met, and at the present time the exportation has reached a very considerable figure.

Perhaps the reason why guarana has sometimes failed, is that, on its being largely sought for, it was sent out in a very mixed and adulterated state. It is probable that a full and fair trial of its medicinal properties, made with specimens unmixed and unadulterated, would lead to its adoption in numerous forms of biliary and stomachic derangements, and as a general tonic, astringent, and antispasmodic, and that ultimately the medicine would take rank in this country and in Europe, as in that in which it is found, as a valuable and indispensable therapeutic agent.

Dr. Gavrelle, who was formerly physician to Don Pedro, in Brazil, and there became acquainted with the virtues of this medicine, called the attention of the Profession to it some years since in France. He has found it advantageous in the diarrhœa of phthisis, sick headache, paralysis, tedious convalescence, and generally as a tonic.

It is highly recommended by Dr. Ritchie, Surgeon in the British Navy, in irritation of the urinary passages. For five or six years Dr. Hervé has used it daily, and in idiopathic diarrhœa has never failed to derive advantage from it, even in the most obstinate cases.

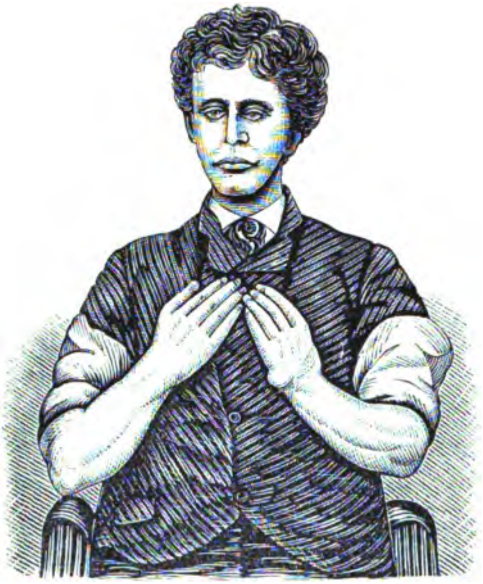


Figure 1.

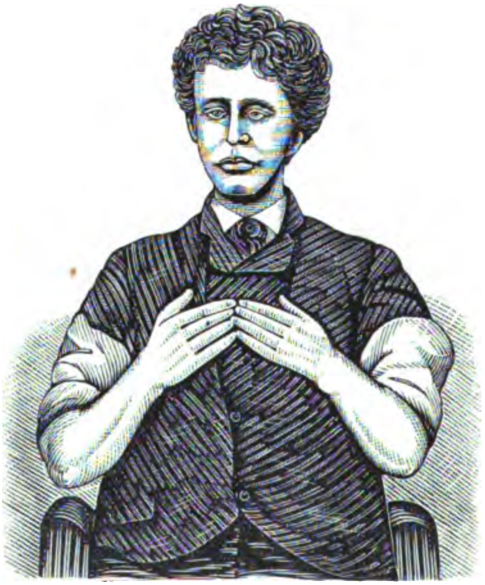


Figure 2.

Administration.—It may be given in substance, in the quantity of thirty to sixty grains, scraped into powder, and mixed with sweetened water. Of the extract, eight or ten grains may be given during the day in the form of a pill. According to M. Dechastelus, alcohol is the only agent which completely extracts its virtues; ether and water effecting this object but partially. The most convenient form of administration is the fluid extract, this may be given in doses of fʒss. to fʒj.

NOTE.—The address of Dr. Pugh is Rushville, Indiana.—ED.

ART. III.—RESECTION OF A PORTION OF THE CONTINUITY OF THE ULNA AND RADIUS FOR THE CORRECTION OF DEFORMITY FROM UNUNITED COLLES' FRACTURE OF SIX YEARS' STANDING. By WILLIAM A. BYRD, M. D., Quincy, Illinois.

Some time during the summer of 1873, I was called on by William M. Francis, a young gentleman twenty-one years of age, employed as a clerk in a dry-goods store, who wished to consult me in regard to the feasibility of any operation correcting a deformity that he had of the left arm. Examining the arm, I found that there had been a Colles' fracture of the radius that had never united. The ulna passed up alongside of the hand until the lower end of it was somewhat beyond the junction of the fifth metacarpal bone and the carpus, and curved at a point opposite the fracture in the radius, the concavity looking toward the radius. The hand was smaller than its fellow, with palm cupped and the fingers partially flexed, with an inability to close them completely or with any degree of force. When he would pronate or supinate the hand, it would describe an arc of the circumference of a cone, the apex of which would be the lower end of the ulna—a very uncouth motion, indeed.

It is impossible to describe the fullness of the deformity, but some idea may be gathered from the cut, Fig. 1, from a photograph I had taken of him the day before I operated.

He stated that the fracture was caused by a fall six years before. A physician of some local reputation for surgery was called in and dressed the fracture (as stated by the patient, his mother, and others), upon a curved splint, turning the hand to the radial side, making the limb, at the time of first dressing, assume the shape as shown at Fig. 1. Some days after it was first dressed, an abscess formed at the seat of fracture, and pointed on the palmer aspect of the arm. This continued to discharge for nearly six months, during which time he was seen daily by his physician. As soon as the external wound healed, he was discharged, with the assurance that everything that could be done for him had been done, and that his arm could never be made any better.

I informed him that I thought I could remedy the defect to a great extent, but he must not expect too much.

Learning that he had been to Dr. Henry W. Kendall with the arm, I declined doing anything for him without the consent and assistance of Dr. Kendall, who is a surgeon of rare good judgment and much more experience than myself. Dr. Kendall kindly assented, and insisted upon my operating, as I had proposed the operation that the young gentleman was anxious to have performed.

November 1, 1873, at the Kentucky House in this city, I operated, with the assistance of Drs. Kendall and William Zimerman, Dr. Ralston giving ether. Drs. Joseph Robbins, C. A. Zimerman, Jr., I. T. Wilson, R. W. McMahan, L. H. Cohen, and Addison Niles, all of this city, kindly favoring me with their presence and advice. When fully under the influence of the anæsthetic, the operation was commenced by making an incision through the skin over the inner side of the ulna, the incision commencing an inch above the styloid process, and continued up the arm for about three inches. The superficial fascia lying at the bottom of the wound, was then very carefully divided over a grooved director. The muscles were pressed apart, so as to expose the bones. The periosteum was divided for an inch and a half, and separated from the whole circumference of the bone; a chain-saw was then passed around the bone at the lower angle of the wound, and the bone quickly divided. The lower end of the upper piece of the ulna was then raised on a spatula, and an inch of it sawed off. An incision two inches long was then made over the point of fracture of the radius, on the outer side of the arm, down to the bone, the ligamentous union between the fragments was broken up with some difficulty. An effort was then made to bring the ends of the fragments through the wound at the radial side, but failing in this, they were forced out through the wound on the ulna side, and their ends trimmed with a pair of bone-nippers. A hole one-sixteenth of an inch in diameter was then drilled from the outer surface of the upper and lower portions of the ulna, commencing one-fourth of an inch from the point of section, and passing diagonally towards the free ends into the medullary cavity. A well annealed iron was then passed through the holes and the ends of the wire twisted together, so as to bring the ends of the bone nicely into apposition; the wire was then cut off, leaving a short piece of the twist, which was bent down parallel with the shaft of the bone to prevent irritation of the soft parts.

The ends of the radius being in apposition, I decided to leave them without further interference.

The wounds were closed with interrupted sutures, and a single straight splint applied to the anterior aspect of the arm, with a roller lightly applied. The operation, from the time of commencing to give ether until the arm was dressed, occupied an hour. Two hours after the operation he was feeling comfortable. Had eaten a little and walked to his mother's, who lived next door; ordered the arm to be kept wet with cold water containing one part in a hundred of carbolic acid. 9 P. M., suffering some pain; ordered sulph. morph., gr. ⅛, every hour until relieved.

Nov. 2, 10 *A. M.*—Passed a restless night; still suffering pain. Continued the morphine and carbolic dressing. 9 P. M., drowsy; tongue coated with heavy brown fur; breath very offensive; pulse 120. Ordered sulph. quin., gr. 10, three times a day; also a mixture of tinct. fer. chlor., aconite and gelseminum every four hours, and three compound cathartic pills immediately. Added a posterior splint.

Nov. 3, 10 *A. M.*—Found patient feeling much better. On taking off the dressings, found the radial wound had healed throughout the greater part by first intention. A sanious discharge was issuing from the upper angle of the ulna wound, from which point to the elbow the arm was considerably swollen, red, and tender. I cut the two upper stitches and pressed the lips of the wound apart down to the bone, to facilitate drainage. Not having had a passage from his bowels, I ordered three more cathartic pills. 6 P. M., suffering pain. Ordered a solution of chloral hydrate and sulphate morphia to be taken as occasion required. Gave an ounce of castor oil. 9 P. M., was sent for. Found him very sick at the stomach but bowels moving; in a few minutes relieved him. Arm still more swollen; discharge less.

Nov. 4, 6. *A. M.*—Was sent for to see patient immediately. Found he had passed a very bad night; arm very painful and greatly swollen from the hand to the elbow; very red; sent for Dr. Kendall, who thought the erysipelatous look of the arm was produced by the solution of carbolic acid; had frequently seen such the case; recommended a solution of lead and opium to keep the arm wet with; took off posterior splint and cut the rest of the stitches; raised the elbow well above the body on pillows. 9 P. M., had been feeling comfortable since morning. Arm looking much better; walked about the house some late in the evening; appetite improving; wound discharging laudable pus.

He continued to improve from the last date with an occasional dose of morphia to procure rest.

On the 10th, with the assistance of Drs. Carnahan and De Ball, I applied Scott's splint, but it pained him so, that in an hour or two he took it off himself and replaced it with the anterior splint. I now stopped the quinine and iron.

Nov. 12.—Complained of the spasmodic contractions of the muscles causing the ends of the radius to hurt him. To remedy this, I made a plaster splint that extended from the ends of the fingers to the elbow, with the arm half way between pronation and supination. It was made so as to cover only the lower half of the arm, with a hole in it over the wound on the ulna side. By this arrangement I was enabled to take it off when necessary, and the discharges from the wound could escape freely. His arm pained him no more after the application of this splint.

Nov. 20.—Radial wound healed; ulna wound healed throughout the greater portion of its extent. An abscess had formed on the palmar aspect of the arm at a point midway between the incisions. When opened, a considerable amount of pus was discharged. This continued to discharge until Feb. 7th, 1874, when probing it I discovered a foreign substance at the bottom of the sinus. Enlarging the opening, I was enabled to extract the wire and two bits of bone that had been included in it in tying the two pieces of ulna together. At this time the ulna had slipped up so as to occupy an almost normal position with the carpus, and the radius had united at the point of fracture; the ulna was still ununited. There was also a small opening at the ulna wound, through which water would pass when injected into the opening on the front of the arm. After this, these openings rapidly healed, and the ulna firmly united. He had some degree of pronation and supination, with good use of the wrist. The fingers became more flexible and the hand less cupped and deformed. He could also lift much greater weights with the arm, which was improving in every respect when I saw him last, April 8th, 1874, as he was taking his departure for California. That the appearance of the arm was more "stylish," which was one of his reasons for wishing the operation, the reader can judge by referring to Fig. 2, from a photograph taken a few days before his departure.

I have taken considerable pains to discover any record of a case similar to the one above reported, but have found none.

Profs. Gross and Erichsen have each reported in their classic works on surgery, cases in which part, or the whole of the ulna has been excised; but in all of them the end of the bone was included in the operation. Prof. Hamilton, "Fractures and Dislocations," fourth edition, page 295, reports a case of excision of the end of ulna to remedy contraction of muscles in compound fracture of the radius. His patient got well with but slight use of his wrist, and of course the loss of pronation and supination; but the above was exsected in the continuity. As this patient had lost to a great extent the use of his fingers, I could see no advantage in taking off the lower end of the ulna, which was the operation advised by nearly all my counsellors, and losing him the use of his wrist and the power of pronation and supination. The counsellors held that the radius having healed by ligamentous union, the prospect was very flattering for the ulna at the point of exsection to unite in the same way. Against that view of the case, was urged the fact, that by breaking up the union between the ends of the radius, one of the classic operations for false joint would be used. If the result should be a false joint in both bones, the deficiency could be remedied when the occasion required it, leaving the patient the use of the wrist joint and the power to pronate and supinate the hand. The wiring together of the ends of the bone after exsection was adopted, thinking that any other device that might be used to draw the lower fragment up from its position alongside the hand, and hold it in apposition with the upper fragment, would be attended with greater pain and discomfort, and perhaps ulceration over the styloid process. It is true, the osteo-necrosis of the included portions of bone with the wire acting as a foreign substance was considered, but in the meantime the lower fragment would have broken loose from its attachments to its abnormal position, and such adhesions would likely form, when in its new position, as to hold it in apposition to the upper piece. Moreover, it would not necessarily prevent bony union. Besides the above reasons, Prof. Paul F. Eve had reported so favorably upon wiring fractured clavicle, that hope was entertained of making the same application equally as useful in other portions of the skeleton. The results in this case more than realized my expectations. It may not be amiss to refer to a statement in the (Nov. 1, 1873,) "Medical Record," page 551, of some surgeon in New York, whose name, unfortunately, is omitted, having made exsection of a portion of the femur for shortening of the fellow limb; also, the practice of Prof. Rizzoli, of Bologna, who has fractured the femur in four cases, so as to produce the same degree of shortening as of its fellow.

ART. IV.—REPORT OF A CASE OF MORBID ACTION OF THE SPINAL CORD, WITH REMARKS. By B. M. WIBLE, M. D., Louisville, Ky.

Mr. ——, after eating freely of pickled oysters for supper, was attacked, June 29th, 1874, in the night, with vomiting, which continued at intervals, in spite of all remedies, for the period of ten days. There accompanied this vomiting a remarkable affection of the skin, resembling at first prickly heat; but becoming so intense afterwards as to appear like scarlatina simplex, especially over the back and outer parts of the arms and legs. Several small bullæ formed about the forehead and neck, which discharged a little pus. During the progress of the disease, a thick coating of dried epithelium formed on the skin, giving it a bronzed appearance. Soon after the commencement of the attack, the tongue became deeply furred, which condition disappeared about the twelfth day. The urine, at first, was scant and highly colored, and afterwards became normal in quantity and quality. The bowels were not disordered to any extent, mild purgatives producing adequate effects. In the progress of the malady, when from any cause, either food or medicine, the bowels acted too freely, the peculiar symptoms to be hereafter described were always aggravated. The temperature for the first eight days was about 99°; then for one or two days it rose to 105°, and quickly subsided, and remained about normal until near the fatal termination. The pulse, from the commencement to the fatal event, was rapid, ranging from 110 to 120 beats per minute, not corded nor tense, but soft and full.

The patient was forty-one years old, tall, elegantly formed, and intelligent, and had never suffered from any serious ailment. He drank spirits frequently, and it is reported to me by his family that small quantities produced unusual effects, rendering his gait unsteady. He had an inveterate habit of smoking tobacco, using it many times a day, and often rising at night to smoke a pipe.

At no time was there marked anorexia, but during the first twelve days his food was light, consisting of sago, milk, and light broths, most of which was ejected by vomiting. Afterwards he used freely nutritious and wholesome food. At no time was there the slightest disturbance of his intellect, and he occupied the most of his time, when the pain would allow, in reading books, or the news of the day.

From an early period of his sickness he complained of numbness of his fingers and toes, and pain in the wrists, arms, ankles, and legs. Careful observation convinced me that the pain was not from rheumatic inflammation.

On the eighth day of July, finding increase of skin eruption, of the pulse, and temperature, and no cessation of the gastric symptoms, I asked for, and obtained the assistance of Dr. E. S. Gaillard. Soon after this consultation, we allowed some champagne to be given, but it made him extremely uncomfortable, and his temperature rose to 105°. Under the use of effervescing citrate of potassa, and citrate of ammonia, with free and constant sponging of the surface with cool water, and a diet of sago and milk, the vomiting and fever subsided. As the weather had been, since the commencement of his sickness, very warm, we allowed him to go to the country by steamboat on the 14th of July; on the 24th he returned. He was now without fever, the skin was less red, but rough and of a bronze appearance from desiccated epithelium; the appetite good, but the pulse ranged during the day from 100 to 110. He informed me that he was paralyzed in all his extremities, and suffered with a sense of numbness and coldness in them, and at short intervals with unendurable pain in his wrists and ankles, and up the calves of the legs and along the forearm. This pain was not increased, or excited by pressing the wrists and ankles, but pressure of the flexor muscles of the arms and legs excited some pain. Very careful observations were now made to ascertain the nature of these aberrations of the extremities. The intellect of the patient was in no way disturbed, but served to aid the investigation. The fingers were in constant tremor, nor could they be stilled by any effort of the will of the patient. When the mind was directed to other objects, the fingers and toes were in constant motion, being jerked in various irregular directions. The hands, fingers, feet, and toes were under the control of the will to considerable extent. He could place his finger on any object desired with accuracy; he could grasp the hand with firmness, and flex and move the hands and legs at will.

Common sensation in the extremities was not impaired, as was carefully tested with pliers; indeed, sensibility seemed rather increased, as the application of the pliers to the fingers, however lightly, gave a sense of pain. On the contrary, tactile sensibility, so-called, appeared to be entirely lost. When a penknife was placed in his hand, he could not distinguish it from other substances, in fact he could not hold it in his fingers at all. It would drop from the hand in spite of all efforts; even with the effort of the will, while he was looking at a pen-knife on the bed, he could not pick it up, stating that his fingers failed to convey an idea of its form and size. When requested to grasp a bunch of keys, he could not tell what they were without the aid of sight. If the keys were placed in his hand, he seemed to be not conscious that any substance was there. This same loss of tactile sensibility was in the feet also; he could not adjust them on the floor, nor even tell when they were on the floor, and from this cause he fell several times in attempting to rise from bed, although his physical strength at the time was sufficient for him to have walked on the streets. Grasping or rubbing the hand gave him no pain, or unusual sensation, yet a slight touch on the palm of the hands or soles of the feet caused such pain that he was in constant dread of being touched unexpectedly. He carefully guarded his bed from the presence of his children on this account. His feet coming in contact with the bed clothes often caused great pain in the ankles and legs.

By his own suggestion, small bags of hot salt were applied to the hands and feet. The warmth, he said, relieved the pain. The pain in the extremities was more or less constant, but aggravated by paroxysms, especially so when the extremities were unexpectedly brought in contact with any substance. It was described by him as being analogous to cramp, and so severe and painful that strong narcotics failed to afford complete relief. This pain, with agitated movements of the muscles, gradually increased, and no remedy given had more than a temporary effect.

Early in his malady, about the tenth day, when his temperature was elevated, he had several attacks of apparent constriction of the chest, attended with a sense of suffocation; careful examination showed that the air entered the cells of the lungs naturally; nor was there any hurried respiration, but this symptom entirely subsided to return with increased violence on the 16th of August, the forty-ninth day from the commencement. The great distress produced by this spasmodic constriction of the chest was mitigated by the free hypodermic use of morphia, but not controlled. When these attacks would come on, the chest would be heaved forward with a deep semi-volitional inspiration. They continued with more or less violence, the pulse increasing in frequency to 140 beats per minute, until August the 20th, when he expired in a slight general convulsion.

The treatment in the early part of his sickness consisted of liquid farinaceous diet, various anti-emetics, including hydrocyanic acid, and morphia and opium; quinine, warm baths, both plain and alkaline; bromide of potassium, and occasionally effervescing, citrate of potassa, and citrate of ammonia.

On his return from the country, August 24th, the iodide of potassium was freely given, also bromide of potassium without beneficial effect. Afterwards, the hydrochlorate of ammonia with digitalis was tried with like effect. Hoping to modify the centres, minute doses of strychnine and Farradaic electricity were tried, but they seemed to aggravate his suffering, and were at once discontinued. With the intention of procuring rest and allaying pain, pills of a fourth of a grain of extract of belladona, and one grain of opium each, were ordered. Three or four of these were required at night to procure rest, but finally we were compelled to administer the ⅓ of a grain of sulphate of morphia hypodermically three or four times during twenty-four hours to give him any momentary respite from his sufferings, and this was our chief reliance until death closed the scene.

Remarks.—All will agree that a morbid action existed in this case in the spinal cord. Was it inflammation or congestion, or morbid change produced by one or the other, as sclerosis, or softening; or was it simply augmented excitabilty, hyperæsthesia, or erethism.

A post-mortem examination was not practicable, as we had not the necessary instruments, nor the skilled observation to determine the minute organic changes in nuerine substances which microscopists have determined. But judging from the phenomena which the case presented, it may be very confidently asserted that the tremor in the extremities, the pain in the wrists and ankles and flexor muscles of the extremities, and the loss of tactile sensation, so-called, were due to what is termed reflex action, due to morbid condition of the gray matter in the posterior column of the spinal cord. By the term spinal cord, I mean all those structures which exhibit excito-motory or reflex property, the medulla oblongata, perhaps some structures superposed on it, as well as the spinal cord proper.

By many writers of the present day there seems to be a confusion as to the meaning of the term reflex. I wish to be understood as limiting the meaning to that given by Dr. Marshall

Hall, in his memoirs on the nervous system. According to that writer, the term reflex action is synonymous with the term excito-motory action, and embraces for its mechanism a series of spinal centres, to which proceed nerves that are distributed on the free surfaces of the body—especially abundant upon the palms of the hands, the soles of the feet, and all the orifices of the body; and from which proceed nerves distributed to the muscles.

In order to render this more explicit, and further, to enable me to account for some of the phenomena in the case reported, it will be necessary to recall some physiological axioms regarded as settled by physiologists.

1st. A class of nerves denominated sensitive. These nerves have their origin or centre in the brain, are distributed through most of the tissues and spread out on all the free surfaces. The purposes of these are to transmit sensation to the brain. They are nerves of sensation.

2nd. A class of nerves denominated voluntary motor. These nerves have their origin or centre likewise in the brain, and are distributed to the muscles. The purposes of these nerves are to transmit, at the command of the will, from the brain volitional power to the muscles. They are voluntary motor nerves.

3rd. A class of nerves denominated excitor. These nerves are distributed, like the sensory, on the free surfaces, more especially on the palms of the hand, soles of the feet, and about the orifices of the body, and have their origin, probably, in the gray matter of the cord.

4th. A class of nerves denominated excito-motor nerves, and are distributed, like the voluntary motor nerves, to the muscles. Their centre is probably the gray matter in the anterior column of the spinal cord.

The nerve force current in the first and third of these four classes is from the periphery to the nerve centres, and in the second and fourth from the centres of the muscles. By many physiologists the first and third classes are simply designated afferent and efferent, but such a designation leads to confusion and error. The first and second classes are cerebral nerves, the last two belong to the excito-motory system, and are spinal nerves.

It will be remembered in the case reported, that common sensation was not impaired, as tested by the pliers. Neither the nerve centre in the brain, nor the white or conducting neurine in the cord, nor the nerve ducts, were therefore the seat of disease.

The volitional use of the muscles was unimpaired, therefore neither the nerve centre in the brain nor the white conducting neurine of the cord, nor the nerve could have been impaired.

If the reflex motor centre (spinal motor) or nerve had been the seat of morbid action, then it is possible that the same spasmodic action of the muscles of the extremities might have existed; but those muscular actions would not have been produced by the slight excitations upon the soles of the feet and palms of the hands, which was so prominent a feature in the case.

All the facts in the case point to the gray matter of the cord as being the seat of disease. The malady then was one of morbid reflex action, and probably limited to the gray matter of the posterior column of the cord, the centres of the excitor nerves.

`Now, what are the functions of these excitor nerves? They are to convey excitor nerve power from their peripheral extremity to their centre; when a motor nerve power is generated, to be sent to the muscles. The remote effect of exciting an excitor nerve is to induce muscular movements; and if the nerve centre be the seat of disease, there will be marked muscular movements, just as we found in our patient; the distorted movements of the fingers and painful flexions of the wrists and ankles. When the foot or hand was firmly grasped, no painful muscular movement was excited, because the excito-motor property was counteracted by the influence of volition; but when this was in abeyance, or diverted to other objects, and the hand or foot was unexpectedly touched, the disordered excito-motory influence gave rise to those painful muscular movements.

In the normal state, the action of these excited muscular movements, when controlled and guided by volition, are among the most beautiful and exquisite to be found among vital phenomena. How minute and exact, and how rapidly performed are those motions of the point of a pen in ordinary writing. How very exact and minute must those motions of the muscles be which put the pen in motion. Even in walking, when the mind or will is diverted to other purposes and serves as a guide only to the muscles, how exact are their movements, due principally to excito-motor influence.

On the other hand, when the gray matter of the posterior column becomes the seat of morbid action, how irregular are the muscular movements, and how painful are the impressions made on the sensitive nerves by these muscular contractions. The abnormal muscular contractions excite painful impressions on the sensitive nerves, just as the familiar cramp of the leg excites pain, and just as many neuralgias are due to *muscular tic.*

How are we to account for the numbness of the extremities, the inability to grasp a knife, or to distinguish the keys placed in the hand of the patient, and the great pain in the extremities excited by the slightest touch of the hands or feet? Evidently all these arise from abnormal muscular movements or contractions, disturbing the nerves of sensation. When a heavy substance is held in the hand, the idea of its weight is judged of by the muscular contractions required to lift it, and conveyed to the sensorium by the sensitive nerves, which have received impressions by the muscular contractions upon them. When the fingers grasp a substance, its form, size, and dimensions are conveyed to the mind by delicate muscular movements impressing the sensitive nerves.

Tactile sensation is nothing, then, but muscular contractions impressing the sensitive nerves, and through them, conveying to the mind the form and properties of substances.

The sense of heat and cold, the distinctions of sounds, the perceptions of light, and the various colors, etc., are all conveyed to the *sensorium commune* by the proper nerves of sensation, and their varying character depends upon the varying agencies which impress those nerves of sensation.

These views of the nature of tactile sensation and of the perceptions are not then generally accepted. It is stated by a friend present that when the eye-ball is pressed with the finger, the sense of light is transmitted to the brain, and this proves to him that the sense of light is due to a distinct and peculiar nerve. I answer, as the only explanation, that the optic nerve being a common sensitive nerve, having had the habit of transmitting only the sense of light, it will continue to transmit that perception when disturbed by other agencies, just as the nerve of an amputated limb will continue to transmit the perception produced by the movement of the toes by habit.

If, as is contended, there is a distinct nerve to transmit the sense of touch, and another to transmit the sense of pain, then we are forced to the conclusion that there must be a distinct nerve to transmit the sense of heat, and another that of cold; that there must be a distinct nerve to transmit the pain of the sting of the bee, another that of the prick of a pin; and such a conclusion would be absurd. Anatomy has shown that there are distinct nerves of sensation and distinct nerves of motion, and experiment has proved that there exists all of the four classes of nerves I have mentioned, and these are all that have been conclusively proven as belonging to the cerebro-spinal system. Then why should we go out into the domain of hypothesis?

In the case of the patient, the rapid pulse, which was remarked during all the time, from the commencement to the end, even when appetite and temperature were normal, was due to the mysterious nervous disturbance. But here the functions of the ganglionic nervous system comes into view, which we do not propose to discuss.

The early symptom of vomiting may have been due to reflex action created by the oysters eaten, or from the peculiar character of the case, more probably from preëxisting disturbance in the spinal nervous centres.

It is difficut to speak of the probable causation of the central nervous disturbance; but the use of alcoholic liquors, to which he unquestionably was considerably addicted, and the use of tobacco by smoking in great excess, there is strong reason to believe, were factors. Indeed, I could find no other agencies to be regarded as causes, except, possibly, the extremely high temperature prevailing when the disease commenced, and which continued most of the time during the illness.

I witnessed no benefit from any of the various remedies administered, except the saline eliminatives and cool bathing in the early period, and the hypodermic morphia in the latter period. This rebelliousness to the influence of remedies, with the nondescript, anomalous and peculiar symptoms, led me in the early progress of the malady to suspect the most serious central nervous disease.

ECLECTIC DEPARTMENT.

"Carpere et colligere."

ART. I.—ON DIAPEDESIS, OR THE PASSAGE OF BLOOD-CORPUSCLES THROUGH THE WALLS OF THE BLOOD-VESSELS, AND HOW TO OBSERVE IT. By JOSEPH NEEDHAM, F. R. M. S.*

The importance of the subject of diapedesis can not be overrated, for one can scarcely attend a course of lectures on physiology, pathology, surgery, or medicine, without hearing, over and over again, a description of or a reference to this process;

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* An article of extreme interest.—E. S. G.

surely, then, you will not regard the time spent in verifying for yourselves so important a fact as wasted. Before proceeding to the substance proper of my discourse, I wish to observe that, although I may draw now and again on physical facts, or encroach too much on the domain of pathology, yet those digressions will only be made to render the explanation of the subject more lucid, or to testify to the importance of a right conception of it.

We will, for convenience, consider our matter under four headings.

1. Mode of demonstration.
2. Description of process.
3. Explanation of phenomena.
4. Concluding remarks.

I.—As to the *modes of demonstration*, various observers have made use of different animals. The material has been drawn chiefly from the Batrachians and their tadpoles. Fish have occasionally been employed; recently warm-blooded animals have been used; but the study of the capillary circulation of mammalia is attended with such great difficulty that they are seldom employed.

We will dismiss the fish and mammalia in a few words. An oblong box of gutta-percha, with glass top and bottom, is generally employed for studying the circulation in fish. A constant supply of fresh water is conveyed to and the deoxygenated water from the box, by means of two pipes. As regards mammalia, there is but one external part—viz., the wing of the bat (used by Paget)—sufficiently transparent for observation; hence it is necessary to employ some internal structure. The mesenteries of small rodents have been used by Stricker; but these are not to be compared with the omentum, and particularly that of the guinea-pig. It differs from that of man in consisting of only two layers of peritoneum, in being much more delicate in structure, and containing very little fat. The observations on these serous membranes have been productive of no good results, for the injurious effects of exposure are much greater than those which occur in Bactrachians.

Therefore to overcome these difficulties, it is necessary to have recourse to complicated appliances and expensive apparatus, and even then so vulnerable a tissue as that of the peritoneum can not be exposed even for a few minutes without injury, so that, although the greatest care is taken in demonstration, only a momentary glimpse can be obtained.

Bactrachians and their larvæ. Four parts of these animals may be used, as follows: (1) The web of the frog's foot. (2) mesentery of the frog or toad—preferably of the toad, whose mesentery is longer. (3) The tongue of the toad or frog. (4) Tadpole's tail. These animals may or may not be curarized. If curara be employed, one drop of one-sixth per cent. solution is injected under the skin of the back with an ordinary hypodermic syringe. If not curarized, the brass frog-plate sold by opticians, or a large flat piece of cork with a hole at one end, must be employed; but these arrangements are only fitted for examining the web.

1. The web of the foot must be extended over the glass in the brass plate, or the hole in the cork, by means of thread tied to the toes and fastened to the plate, or by means of pins to the cork; but the web is not well fitted for observing diapedesis. The epithelium soon becomes dulled by the action of reägents, and often the extension of the web impedes or entirely prevents the circulation.

2. The mesentery. Although the preparation of the mesentery is not so simple as one might anticipate, yet it is well suited for our purpose. The animal must be under the influence of curara, and the use of a stage frog-plate is necessitated, the construction of which is as follows: A piece of cork, having a circular hole in the middle, is fastened to one end of a plate of glass or cork with a corresponding hole; a circular piece of thin glass is fixed to the projecting cork, above the hole, partly covering its surface. An incision is made parallel to the median line on the right side of the belly. Care must

be taken not to sever any large vessels. A similar incision is then made in the exposed muscles, still avoiding the blood-vessels. Should there be any bleeding from a large vessel, it must be restrained by torsion or ligature. All traces of blood having been removed with bibulous paper, the intestines and mesentery are drawn out carefully and placed on the projecting cork. The animal must lie supine. The intestine is covered with bibulous paper, and a thin "cover" glass placed on the mesentery. The whole is kept moist, by the frequent addition of a few drops of a half per cent. solution of chloride of sodium. The mesentery should be exposed for two or three hours before required for observation.

3. The tongue was first used by Cohnheim. The animal in this experiment must also be curarized. A plate, similar to that last described, is used. The tongue is drawn out and ligatured near its root. Forty-eight hours after, the ligature is removed, and the circulation generally recovers in a short time. Dr. Mitchell Bruce suggests interposing a piece of leather between the ligature and the tongue, to prevent injury to the organ. The animal is placed on its back, the tongue drawn forwards, spread over the thin glass, and secured in position by means of small pins. The dorsum of the organ will be directed upwards.

4. The tail of the tadpole can be arranged with great facility, and affords a most interesting object. Dr. Klein recommends curarizing the animal by placing it in a moderately strong solution of curara until motionless. It is then placed on an ordinary glass slip, the tail covered with a thin glass, and kept moist by the addition of salt solution when necessary.

II.—The examination should be commenced with a low power, so that a moderate-sized vein can be easily selected. The low power is changed for a No. 7 Hartnack, corresponding to an English quarter inch. The chosen vessel must now be closely watched.

In every vessel, so long as the parts are natural, the central part of the current is occupied by colored, and the periphery by colorless, corpuscles. The colored pass along with their long axes parallel to the long axis of the vessel, whilst the colorless assume a spheroidal form, and move more slowly, or, as Dr. Burdon Sanderson has aptly likened them, to " round pebbles in a shallow but rapid stream."

A column of fluid may be supposed to consist of several strata, and the friction of the fluid against the wall of the vessel causes the external layer to move more slowly; hence the slow onward progress of the colorless, and the quicker transit of the colored. After awhile the relation will be seen to be altered; the vessel becomes filled with colored corpuscles, which have a tendency to reach the external layers of the fluid, whilst the colorless are adhering to the walls of the vessel. Frequently they are loosened and swept onwards by the current, but many remain stationary, and in a short time elevations will be observed on the outer side of the wall of the vessel. These gradually increase in size at the expense of the corpuscles in the interior, until at last the perfect corpuscles are seen wandering away from the vessel into the tissues by means of their delicate hyaline processes or pseudopodia.

III.—We will now consider the fallacies, and the various explanations, of these phenomena.

Fallacies.—One great source of error is the rupture of some vessel accidentally or from operation. The blood corpuscles spread over the field of the microscope, and a false impression is conveyed to the mind of a superficial observer—viz., that they have escaped from the vessel under observation; but careful focussing will soon reveal the mistake. Very often a small vessel may partly cover, or be concealed, by a corpuscle. Again, the observer imagines he sees a corpuscle emerging from the vessel; but no errors of this description can ever be committed if the following simple rule be rigidly observed—viz., that all corpuscles, on their passage through the capillary walls, consist of three distinct portions; one on the exterior, another on the interior, and a third or neck uniting them; in fact, a distinct constriction should be seen.

Explanations.—Observers do not agree on the manner in which the corpuscles escape from the unruptured vessels.

Cohnheim considers that by virtue of the amœboid motion they possess, their exit is readily effected through the false stomata between the endothelial elements of the vessel. He also states that the molecular arrangement of the constituents of the endothelium is altered; hence it becomes sticky or viscid, and the onward course of the corpuscles is retarded. Billroth believes that it is due to some chemical or some molecular changes producing softening of the vascular walls.

Chonheim stated that pressure assisted materially in the process; but if the arteria-media of a rabbit's ear be exposed, the corresponding vein opened, and distilled water injected through the artery at a lower pressure than that of the blood, it will produce inflammation, although no fluid has been expressed from the vessels.

The introduction into the circulation of a small quantity of two per cent. solution of common salt will also produce an abundant migration.

Stricker and Prussak consider the process due to an "active state" of the walls of the vessels, which consist of a homogeneous extensile protoplasm, and adduce as proofs that all colloid substances allow other colloid substances to pass through without their integrity being broken, as proved by Graham, and have likened the process to the passage of frog's blood corpuscles through the much smaller interstices of a fine filter. Erichsen thinks that the nerves and other tissues have an important influence.

In silver-stained preparations the corpuscles always lie in the inter-endothelial lines.

The colored corpuscles, which can also be observed to migrate, are either taken up by the colorless corpuscles or are disintegrated, producing pigmentation.

IV.—Intimately connected with this subject, is the origin of pus. We now know that migrated blood corpuscles form the chief source; but, if we carefully review the subject, we shall agree with Dr. Payne's remarks on the subject before the Medical Microscopical Society—viz., that "Virchow's idea of the origin of pus, though now old-fashioned, is far from being overturned by Cohnheim," for the observations of Stricker and Recklinghausen go directly to prove origin, in part at least, by proliferation of connective-tissue corpuscles.—*Microscopic Jour.*

ART. II.—DIRECT LOCAL MEDICATION IN THE TREATMENT OF CHRONIC CATARRHAL INFLAMMATION OF THE NASAL AND PHARYNGO-NASAL CAVITIES. By THOMAS F. RUMBOLD M. D., St. Louis, Mo.

There are no cavities in the human body, whose inspection requires reflectors, that are more easily examined than the nasal and pharyngo-nasal; at the same time, none are so difficult to cleanse and make applications to, without doing injury equal to any benefits intended. The importance of thoroughly freeing the surfaces of the extraneous products of inflammation, is quite equal to the therapeutic effects of the remedial agents employed. Repeated observations during the last few years have shown that if the surfaces are maintained *clear* of irritating secretions, a large number of patients will grow well without other treatment. This is true, especially of the young. Again, experience has taught another equally important lesson; i. e., whatever method for attaining this result is chosen, it should cause but very slight irritation, not lasting beyond a few seconds.

The instruments adapted for accomplishing this result in the mildest and most complete manner, are spray-producers. They blow the muco-purulent secretions away from their lodging-places, and force the medicated solution into every irregularity, into places that can not possibly be reached by the brush or sponge; or even viewed during life.

The spray-producers that I use for this purpose are made of glass. The tubes are obtained from the glass-blower with the reservoirs already blown on them. I form the points and bend the tubes to their proper shape over a small alcohol lamp or gas-light. The two tubes are fastened together by first heating them, and then placing a small strip of gutta-percha between them. A short experience will enable any one having a little "knack," to form and bend the points for either a fine or coarse spray.

As the spray-producer can throw a stream in one direction only, acting upon a surface of about three-fourths of an inch in diameter, and as the avenues for applications to these extensive surfaces are the narrow space behind the sensitive soft palate and the anterior nares, therefore a number of nebulizers, whose soft points are so constructed as to throw streams in the various directions that are requisite to cleanse and medicate every portion of the diseased surfaces, are indispensable. My experience has taught me that five directions (Fig. 1, Nos. 1 to 5, inclusive), are necessary to effect this—viz., one throwing a horizontal stream (No. 1), washing the anterior portion of the soft palate, the tonsils, and by elevation of the outer extremity, the posterior wall of the pharynx, from the third cervical vertebra, upward to the middle of the second; one throwing a stream at an elevation of forty-five degrees (No. 3), directing the spray against that portion of the posterior wall covering the first and second vertebræ; one throwing its stream verti-

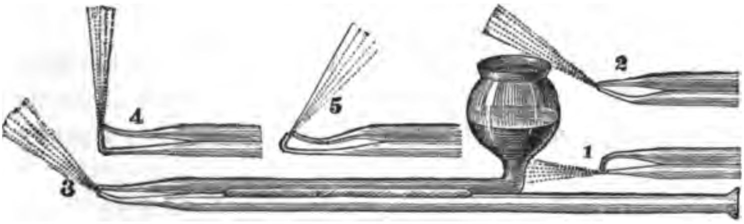

Fig. 1.—Spray-producers for the pharynx, the pharyngo-nasal and nasal cavities (reduced one-half).

No. 1 throws a spray directly forward into the mouth. No. 2, into the anterior nares. No. 3, upon the posterior wall of the pharyngo-nasal cavity. No. 4, the superior wall of same. No. 5, into the posterior nares.

cally (No. 4), reaching the superior wall of the pharyngo-nasal cavity; one reaching through the posterior nasal openings, throwing a stream upward and forward, at an angle of forty-five degrees (No. 5), washing the under surfaces, borders and inner sides of the superior, middle and inferior turbinated processes, the point of the instrument should be placed a little behind the lower border of the soft palate, alternately upon the right and left side of the uvula; and still one other, intermediate in direction between the first and second named (No. 2), is introduced into the anterior nares, and by elevation and depression of the outer extremity, made to wash and medicate the remaining portions of the nasal passages, and the whole superior surface of each side of the back to the first cervical vertebra. Slight rotation of the instruments will be required to treat the lateral walls. Air forced by India-rubber bulbs is the mechanical means that produces the spray.

I have employed this system daily since 1866, and consider it greatly superior to using either the brush or sponges, except for treating phagedæna, and then only when stronger medications are required than to the general surface.

When the muco-purulent secretions have formed incrustations which are closely adherent, the spray-producers have no sufficient force to remove them; this may be accomplished by the posterior nares syringe; but the objection to this instrument is, that however carefully handled, it causes by its introduction and force of the current, sensations, and occasional injuries, which the patient is unwilling to submit to. The instrument almost universally employed in such cases is the Weber Nasal Douche (improperly called Thudicum's*), but from the lack of the adaptation of this method to accomplish the result intended, it must very frequently fail. This mode of cleansing is beneficial, either when the incrustation is wholly situate low enough for the medicated stream to wash it, which is very seldom, or when the secretions are so abundant as to extend or flow to the inferior portion of the cavity, when the diseased surfaces are beyond its reach.

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* See Roosa on the Ear, p. 292.

A careful examination of the location incrusted, and the surfaces irrigated by this douche, will show that it *must fail* in a very large majority of cases, and that it is the most unphilosophical application that has ever become popular with the Profession. When the head is inclined, as necessary in the use of the Weber douche, (Fig. 2) and the rubber tube inserted into the nasal opening of the side affected, the fluid can only rise to the lower border of the posterior nasal opening of that side (line *e*), and this is equal in height to only one-half of the nasal fossa, the half seldom affected or requiring treatment.*

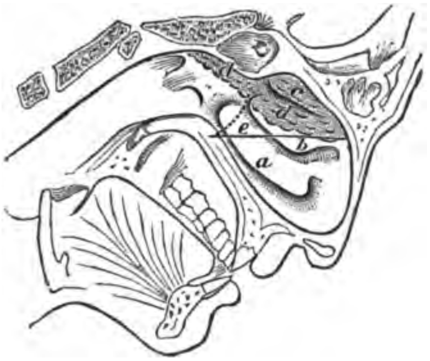

FIG. 2.—Antero-posterior section of the face and head; *a* inferior turbinated process; *b*, middle turbinated process; *c*, superior turbinated process; *dd*, location of incrustations to be removed; *e*, line showing the height of the water in the nostril irrigated by the Weber douche. "Dotted line" indicates the position of the septum nasi, the turning point of the liquid in leaving the other nostril.

In the other nasal passage the floor only is washed by the escaping liquid, the elevation of the soft palate against the posterior wall of the pharynx will neither alter the turning point of the liquid, nor raise it much higher in the cavity, as closure only prevents it from going down into the throat. The advocates of this douche may say that sufficient force can be employed to throw the liquid up to the proper place, but such advice will only be given by the inexperienced, as this procedure would occasion irritation, muscular contraction, and lowering of the soft palate, with escape of liquid into the larynx. According to St. John Roosa and L. Turnbull, the fluid may enter the middle ear by the Eustachian tube, and induce severe inflammation. When masses of fœtid matter are loosened by this procedure, it is an evidence that the secretions were so abundant as to fall within reach of the irrigating fluid, or it may be that the irritation of the medicated liquid excited a greater flow of mucus in the whole cavity, thus detaching a portion of the scab, having an effect similar to an irritating powder, when snuffed into the nostrils. If the practitioner will carefully examine a case of this description, after this apparent thorough cleansing, he will find in the superior portion of the passages a large quantity of the purulent secretion remaining, which can not be reached by this means.

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* In this connection I would add, that the upper half of each nasal cavity is oftener the location of diseased action, both because of greater delicacy of structure, and, that its posterior upper surface receives *directly* the currents of air during respiration.

During four and a half years I have used an apparatus called by me the Catheter Nasal Douche, which is so constructed that it will throw a shower or coarse spray from the floor of the nostril upward, reaching every portion of the irregular surface of these passages. The only sensation occasioned by its use with warm salt water, is that of tickling, never objected to by the patient. It is a flask-shaped bottle (*a*), holding about one and a half pints. Into the rubber stopper is inserted two metal tubes whose outer extremities are bent at right angles, and turned in opposite directions. One of these only pierces the stopper, and has attaced to it the India-rubber bulbs (*f*); the other almost reaches the bottom of the vessel (*b*), and has attached to its outer extremity a rubber hose (*e*); and to the hose is fastened a No. 4 catheter (*e*), at the further end of which are made five small openings (*d*) on a line with its axis. The free extremity of the catheter is closed. The tube, whose lower extremity dips into the medicated fluid, has a small apperture in its side, just under the rubber cork (*b*);* this is to allow air to enter during the passage of the liquid, the effect of which is, causing the tube to contain beads of air and fluid in close succession, so that when escaping from the small openings in the catheter, it will resemble a coarse spray. The catheter is introduced into the affected nostril, and the stream directed upward. A slight rotation on its axis will cause this spattering current of fluid and air to *wash* and *blow* the secretions away from their lodging places, in a milder and yet more efficient manner than a steady flow of liquid.

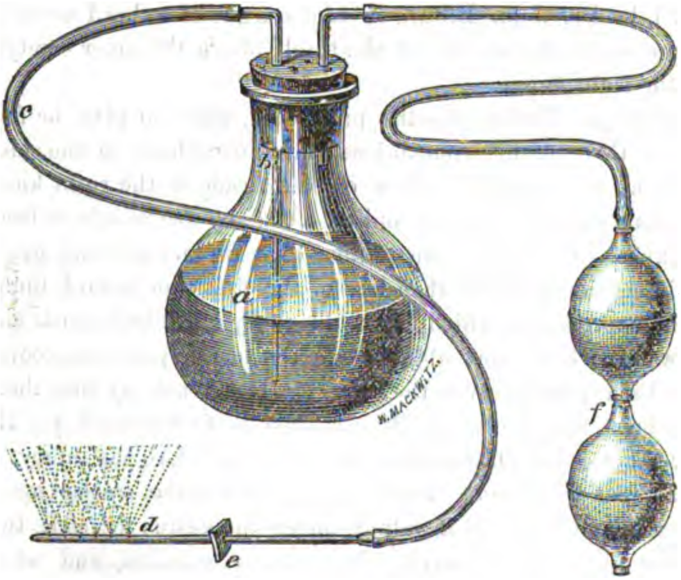

FIG. 3.—Catheter Nasal Douche (reduced to one-third); *a*, reservoir; *b*, metal tube for the passage of the fluid, having a small aperture in its side for the entrance of air; *c*, rubber tube; *e*, catheter; *d*, foramina for escape of coarse spray.

The cleansing process may be greatly assisted by the patient closing the nostril that is not treated, and then giving a quick and forcible blow out of the one being washed, sending the liquid and everything loose, out with great force.

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* This opening should neither be too large nor too small, as either will prevent the formation of a coarse spray, and thus interfere with the efficacy of the instrument.

ANALYTICAL DEPARTMENT.

"Qui e nuce nucleum esse vult, frangit nucem."—PLAUTUS.

Case of Absorption of an Exostosis. By John Chiene, M. D., F. R. C. S., F. R. S., etc.—Is an exostosis, after it is broken off by violence, ever absorbed? I can not find this question discussed in any work on pathological anatomy. The following account of such an occurrence is therefore worthy of record:

G. B., aged fourteen, was brought to me on the 12th of April, 1873, by Dr. John Brown, in consequence of a hard movable tumor under the muscles of the thigh, above the inner condyle of the right femur.

History.—Twelve months previously, while at play, he fell, two or three of his companions rolling over him; at the same moment he received a blow on the inside of the right knee. Swelling and pain ensued, and for a time he was unable to bend his knee. Under hot fomentations the pain and swelling gradually subsided, and he then felt for the first time a hard lump, as he expresses it, which he could easily move backwards and forwards. Since the subsidence of the acute symptoms, iodine has been painted over the tumor. He can not say that there has been any change in its size since he first noticed it. He never noticed anything wrong with his leg before the injury.

Present Condition.—There is now an irregular osseous mass, the size and shape of a walnut, under the vastus internus, two inches above the condyle. It is freely movable, and when moved it rubs against an osseous surface on the femur. Both surfaces are irregular, and the feeling of crepitus, although perfectly distinct, is somewhat modified, as if the opposing surfaces are covered by fibro-cartilaginous material. He can bend his knee, and only complains that the part becomes sore after violent exercise, and after the tumor is freely manipulated.

Diagnosis.—An exostosis (unnoticed until the injury), broken off from the femur by the blow.

Believing with Billroth, when speaking of operations on exostoses close to joints, "it is neither advisable nor necessary to undertake such operations unless the impairment of function be so great as to balance an operation dangerous to the joint and to life," and hoping that absorption of the tumor would take place after its principal vascular supply was cut off, I recommended delay before removal of the tumor. A strong elastic knee-cap was ordered, and the patient told to abstain from violent exercise.

May 15*th* (one month after I first saw him).—Tumor apparently smaller. No pain nor uneasiness.

March, 1874.—Since last report the patient, a most intelligent boy, says that the tumor gradually decreased in size. He says that on the first of October he could still feel a small lump, and on the 15th of October he could feel nothing, and removed the knee-cap; and since then he has never paid any attention to his leg, and is now quite well.

On 12th of March, 1874, and again on 12th of April (exactly a year after I first saw him), I carefully examined the patient, and with the exception of a slight linear projection, an inch in length, on the osseous ridge, leading up from and about two inches above the internal condyle, I can not distinguish any difference between the limbs. The movements of the joint are perfect.

There is an obscure feeling, as if there is a bursa over the projection, the muscles moving slowly over it.

Such a case suggests two interesting questions in the treatment of exostoses near important joints:

1. Should not an attempt be made in the first place to break off the exostosis without exposing it, by laying hold of it with large forceps, well padded, so as to prevent injury to the skin, in the hope that absorption of the tumor will take place in consequence of its principal blood-supply being cut off?

2. When the surgeon meets with an exostosis which has been broken off by accident, he should wait, and not cut down hastily on the tumor to remove it. In such a case as the one just described, there is always a risk of implicating the knee during

the operation. To run such a risk, when we consider how little annoyance the tumor was giving the patient, was, in my opinion, unjustifiable. The result has justified the expectant treatment of the case.—*Edinburgh Med. Jour.*

The Histology of the Brain in the Insane.—Very many physicians who have given attention to this subject are of the opinion that the structure of the brain is not materially, if at all, altered in disease. Now, however, a different view is expressed in a paper read before the Chicago Society of Physicians and Surgeons, and reported in the "Chicago Medical Examiner" for June. The paper in question was prepared by Dr. Walker Kempster, of the Northern Asylum for the Insane, at Oshkosh, Wisconsin, formerly of the New York State Lunatic Asylum, at Utica, and he had made microscopical examinations in forty-nine cases. Numerous slides were exhibited of sections, made mostly through the third left anterior cerebral convolution, illustrating the lesions of acute mania; the large sclerous patches in chronic mania; the dementia of syphilitic paralysis; one section through the olivary body, and one through the pons Varolii—each illustrative of acute mania.

Numerous micro-photographs were likewise shown, illustrating the lesions of cerebro-spinal meningitis; of numerous colloid masses in the medulla oblongata, and large degenerated masses with dense fibrous investing membrane in the spinal cord, opposite second cervical vertebra—each illustrative of acute mania. Also a section through the olivary bodies, in a case of puerperal mania, showing fibres and connective tissues in degenerated masses.

After acknowledging the great abilities and researches of Lockhart, Clarke, Virchow, Meynert, Schultze, Deiters, and others, in the study of the nervous system, Dr. Kempster remarks that, so far as he is aware, none of them have directed especial attention to the abnormalties found in the brains of those who die while insane.

Reference was made to an article in the "Edinburgh Medical

Journal" for September, 1868, by Dr. J. B. Tuke, as being the only exception which Dr. Kempster was able to find.

The student is met with the stereotyped phrase that there are no discernible lesions peculiar to insanity. For a number of years Dr. Kempster has been making systematic microscopical study of the brain, and has examined the lesions of all forms of insanity, from acute mania to dementia, including puerperal and epileptic insanity.

In each and all forms he has found a marked lesion—so that certain lesions may be grouped together as common to certain forms of insanity, and to which lesions any particular type of insanity is palpably due. There is a wide difference between the lesions of acute and chronic mania.

1. In certain forms of insanity, and notably in dementia, the finer capillaries show marked indications of disease, the perivascular sheath surrounding the vessel is distended, so much so, that sometimes the vessel itself appears to lay in a tunnel, its calibre being much less than the sheath, doubtless due to repeated capillary congestions of the vessels often diseased—irregular in calibre, suggesting the idea of aneurismal dilatations, but entirely distinct from the miliary aneurisms so ably described by Charcot.

2. Next, there is a degeneration, best studied in cases of dementia of syphilitic origin, and in the medulla oblongata, in the wall of the capillary, presenting dark red patches at various points outside its walls, which gradually thicken, and appear to be due to a fatty metamorphosis or atheroma. The description by Meynert, though accurate, is by no means so complete as could be desired.

3. In 1871, while examining a section taken from the gray and white matter of the third left anterior convolution, there was a peculiar appearance of the tissue. Situated in the white substance, but very closely to the gray matter, there were a number of small *white spots*, some round, some ovoid, clearly defined, in sharp contrast with the nerve tissue, varying in size from 1-50 to 1-200 of an inch in diameter; these appeared to

be of a granular consistence, and much more dense in structure than the surrounding brain substance; each disconnected from the other, and normal white matter intervening. They did not absorb carmine, and were not connected with the capillaries. On the surface of some of the spots are fibres of connective tissue and crystals of margarine. To determine the true character of these spots and the degeneration, certain very elaborate and extensive micro-chemical manipulations were made, not here necessary to be stated. On allowing a section to dry, either with or without the nitric acid treatment, these spots appear to project above the surface of the section. By teasing, they may with difficulty be removed. None of these spots have been observed in the gray matter. They are most numerous in the medulla oblongata, and may be found in the white matter of the spinal cord.

4. There is another form of degeneracy, one which is found in cases of acute mania. The spots are less in size; are far more numerous than in the other variety (3); resist carmine staining; do not possess the granular characteristic; there are no spindle-shaped fibres of connective tissues about them; they behave very differently under the micro-chemical tests applied to the other variety of spots. The points of resemblance are mainly in color and apparent density. Neither of them have any investing membrane.

5. A fifth variety, as large in variety as the third, possesses a dense investing membrane, which resists carmine staining and is less granular than the third and fourth. It exists in the same brain with the fourth variety. These spots or masses of the fifth variety are called "colloid," because of their resemblance to such growth, and are found in the medulla oblongata and pons Varolii. The last three varieties of degenerated masses, or spots, have one feature in common—a well-defined edge, a clean-cut margin, easily made out.

6. A sixth variety, common in cases of dementia, and where the atheromatous capillary is found, is one in which the mass passes insensibly into the surrounding normal tissues. This

form is larger and less distinct than the others. It more nearly resembles normal brain tissues. Sometimes these masses are lobulated. They are granular and dense, less numerous than in the other varieties, and do not appear in clusters. They appear to destroy or transform the tissues, and if surrounding a capillary, destroy its walls. A point of resemblance in common with the third variety is, that connective-tissue fibre appears in both.

The condition of the cellular structures of the brain, of the nerve fibres and so-called lymph spaces, are all fields rich in results not yet spoken of.—*Edinburgh Med. Jour.*

CLINICAL RECORDS.

"Ex principiis, nascitur probabilitas: ex factis, vero veritas."

Art. I.—Surgical Case. By S. Eagon, M. D., Jefferson, Texas.

Mr. C., of Harrison county, Texas, aged 22, dwarfed in stature, though of a family of average physical development, of delicate aspect, with expression of gloom and despondency, the subject of congenital phymosis, applied for treatment in November, 1873, whose past history was thus stated: Had suffered from childhood, more or less, from painful and difficult micturition, which at times was exacerbated into fits of great suffering, lasting for several days. During the greater part of his life he had suffered from digestive disorder, the effects of which, superadded to his urinary difficulty, along with the mental and moral depression due thereto, had reduced him to a very distressing state of existence. Several months before the patient came under our observation, he had consulted surgeons in a neighboring city, who, believing the phymosis to be the cause of the trouble, had performed circumcision, from which operation partial, but only temporary, relief resulted.

On examination, we found a stricture of the external meatus, which admitted readily only a No. 4, by reason of the elasticity of the lips of the orifice; a No. 6 could be passed through by the application of considerable force. Using a No. 6 bulbous steel sound, we encountered difficulty only at the external meatus, the bulb of the instrument traversing the rest of the urethral canal with the greatest freedom. Upon a director introduced into the urethra, with its groove looking downwards toward the frænum, we divided the stricture freely to the extent of several lines, taking care in making our incision to keep exactly in the mesial line. A No. 14 steel sound was now passed into the bladder with the greatest facility, withdrawing which, a roll of patent lint, about the size of the instrument, an inch in length, dusted with the persulphate of iron, was passed up the urethra sufficiently for its upper end to reach above the limit of incision; the dressing to be replaced by a similar one of weak carbolic oil after a few hours, the latter to be continued for two days, to be followed in turn by the application of a short conical bougie of appropriate size for several days more, after which the instrument is to be introduced daily for several weeks.

A perfect cure resulted in this case in the course of a month; and in a letter received from the gentleman in June last, seven months after operation, he informs us that, locally, there was entire freedom from contraction or tendency thereto, and that his general health was quite recovered.

This operation, in itself one of the most minor in surgery, is, if measured by the benefit conferred upon the sufferer, entitled to much higher rank; and the importance of the subject is such, we conceive, as to justify the reproduction here of the very judicious remarks of that master in genito-urinary surgery, Sir Henry Thompson, in his great work on Stricture of the Urethra:

"It is by no means uncommon to meet with stricture at, or very near to, the orifice of the urethra. It may be congenital; the result of inflammation; of cicatrization after chancre, or other lesion there. It may be the only obstruction in the canal, and yet give rise to the most painful and serious symptoms, and even to a fatal result. A case of the latter-named kind has been already alluded to. I have given complete relief to distressing symptoms of very long continuance, the cause of which was not suspected, by dividing an external meatus, which admitted, nevertheless, a No. 5 catheter. I have met with three marked examples of a similar kind, in which the very simple operation was followed by a complete disappearance of urinary difficulties, which had been long regarded as of an obscure character. When the contraction is much narrower than that alluded to, the cause is obvious enough, but the exceptional condition should not be forgotten. The sides of the orifice in such a case are very elastic, so that although a No. 6 or 7 bougie may be passed, the real orifice falls far short of that calibre. All these constrictions of the orifice are remarkably obstinate, and generally speaking, dilatation is useless, while at the same time it is extremely painful. Incision, also, to be permanently successful, must be free. It may be performed with a director and straight, narrow-bladed bistoury; but the most efficient mode is a small bistouri-cache, which is passed through the contracted part of the canal, by pressing on the handle the blade is opened to an extent previously determined, and being drawn out, the section is made.

"It is necessary only to take care that the edge is turned directly downward—that is, toward the frænum. A piece of dry lint, rolled up to the size of about a No. 12 or 14 bougie, and introduced for an inch and left there, stops the bleeding, and may be exchanged for similar plug of oiled lint after a few hours. After a day or two, the patient may introduce for himself a short conical bougie, about three inches long, and provided with a handle sufficiently long to prevent the possibility of its slipping altogether into the urethra. If division is not free, adhesion of the sides is apt to occur, and more or less narrowing return. The consecutive dilatation must also be maintained for a few weeks."

ORIGINAL CORRESPONDENCE.

"Sit mihi Fas scribere audita."

MOBILE, ALA., August 1, 1874.

E. S. Gaillard, M. D.:

Dear Doctor,—As your Journal has been the medium through which my papers on the subject of Stricture of the Urethra have been placed before the Profession, I now avail myself of the same channel to correct impressions which may have been produced against certain views therein expressed by an article under the caption, "Divulsion in Stricture of the Urethra," by Samuel Logan, M. D., which I have just read, whilst glancing over the "New Orleans Medical and Surgical Journal" for the present year.

Although there is nothing very new or particularly interesting in the article, beyond the notes of some nine cases treated by the use of 'Holt's Divulsor,' it nevertheless calls for some notice, emanating as it does from "one worthy of respectful attention."

In this communication it is not my purpose, nor shall it prove my intention, to provoke a discussion upon the varied methods of treatment which have been brought into requisition for the cure of urethral stricture; they have been too plainly laid down in the many standard works on this subject to require anything more to be said by me, in a mere journal article; to do so would be a work of supererogation on my part, and would not probably add anything very useful or interesting to the great mass of matter which, in the last few years, has been written upon this very important branch of surgery. Nor shall it be my aim to try to "divulse" any settled theory or opinion which the writer of that article may have entertained or established. My desire is only to place, in a correct light, certain views which I entertain, and which the author of that article has deemed worthy, by his notice, to be intruded again upon the Profession. It is not my wish either to censure divulsion nor laud internal urethrotomy; nor am I disposed to consume time and space by a controversial war of words about special operations or particular instruments. I only wish to call the attention of the Profession to that article, and point out errors which the author has made in his quotations from my published papers—errors which I would prefer to attribute to his haste in writing, rather than to a disposition to do me injustice.

The first passage of his article to which I desire to direct attention, is where he does me the honor to show that I have *endeavored* to obviate some of the many disadvantages of external urethrotomy, as it was performed by the late Professor Syme, and adopted by his admirers.

In writing that paragraph, the author evidently had in his mind an article of mine which was published in the "Richmond and Louisville Medical Journal," and which was simply *a report* of certain operations which I had performed by "a new method"; a narrative only of those operations, with the results which followed the course of treatment adopted. To more fully illustrate the point in question, I will quote that paragraph entire, as it is to be found on page 56 of July issue of the journal referred to; here the writer uses the following language: "It is true that Maston, of Mobile, (he should have written Mastin) proposes, by means of a kind of external subcutaneous urethrotomy, very similar in principle and in fact to 'le boutoniere,' to, in a measure at least, obviate this tendency, but his procedure can not do so entirely."

I beg to be permitted to state that *I do not propose,* "in a measure at least, to obviate this tendency," for my 'procedure' *does* actually and exactly accomplish the fact; it does close up the perineal incision, and it heals by primary union. In substantiation of which assertion, see the March issue of "Richmond and Louisville Medical Journal," 1873, page 257, Art. I., entitled "New Method," etc., etc. There it will be shown that I have given the notes of nine cases (there were ten) upon which I had operated after that method—"a kind of external subcutaneous urethrotomy," as Dr. Logan styles it; and that the cases had all healed by first intention, thus obviating the dangers attributed to the operation of Mr. Syme. Now, if ten cases upon which a perineal section had been performed did heal by first intention (and this fact can not be disputed, for the cases can be produced and witnesses introduced), then it is not generous to charge that "his procedure can not do so entirely." If, on the other hand, I had simply *proposed* to do that much by my peculiar operation, and had failed to accomplish what I attempted (vis), to gain primary union after a perineal section, even though it were in but a single case, then it might, with much propriety, be charged against me that "his procedure can not do so entirely."

The cases reported in the issue of Gaillard's Journal, to which I have referred, are the only cases upon which I have ever deemed it necessary to operate by an external section, and I am pleased to be able to state that the operation has given me such entire satisfaction that I shall in future not hesitate to perform the same operation upon any case which may present itself; provided the nature of the stricture be such as calls for an external section for its relief.

I am not informed whether the writer of that article has considered my method worthy of investigation and subsequent trial; and if he has not given it the "*fair trial*" which I asked from the Profession before it was condemned, then I would suggest to him that it will only be generous on his part that he should test the method by the crucial experiment of "*a fair trial*" before he places himself in the position of a judicial authority upon the subject. From his well known reputation as a surgeon, and his acknowledged dexterity as an operator, I am willing to abide the result of a 'fair trial' at his hands, with the full belief that the consequence will be that he will become, if not an advocate of the method, at least a competent witness that perineal sections will unite by primary union, provided they are placed in a proper position to do so.

I have given this paragraph thus much notice, more for the purpose of defending my published assertion, "that perineal sections will unite by first intention," than for the purpose of writing anything on "general principles" against divulsion. My desire has been only to show that the author of that paragraph has, unwittingly perhaps, done me injustice by his remarks—"an inference warranted by the manner in which he expresses himself," when he writes that *I propose* to do a thing which I "can not do entirely." This would not have admitted such a construction had there not been recorded cases enough to prove the truth of the assertion that these operations *can and have been* closed by primary union. With such well-attested cases, clearly recorded, I am justified in saying, that the only argument required to convince an unprejudiced observer of the error, is to be found in the undisputed logic of facts.

Reading still further in his paper, I was astonished to find that he was disposed to arraign me before a judicial tribunal for my views expressed on the subject of internal urethrotomy; and although he honors me with the compliment of being "one worthy of respectful attention," he is certainly very far from being complimentary in his remarks, when he styles me "quite an enthusiast upon the subject of internal urethrotomy." We find him quoting again from one of my published papers, entitled "Internal Urethrotomy as a Cure for Urethral Stricture," and after doing so, his charge that I am "an enthusiast," etc., would very naturally lead the uninformed reader to the inference that I was so wedded to that operation that I could not resort to any other. Now, had he given me full credit for all the views which I entertain upon this subject, he would have placed me in a very different position from that of an enthusiast upon any one operation; and he could very easily have done so, had he taken the trouble to read the preface to the brochure now under consideration, where he would have found a clear and unmistakable exposition of the author's views in the following language: "Its object is to show the present state to which internal urethrotomy has been brought, with an abridged history of the operation, not for the purpose of advocating any *special* course of treatment of urethral stricture; for we do not propose to confine the treatment of this affection to any one special mode, knowing, as we do, that stricture, in its different states, requires as many methods of interference for its cure." If the English language can convey an author's meaning, certainly this passage conveys mine, and is not calculated to subject me to the charge of being "an enthusiast" upon the subject of urethrotomy. But the writer of that article may insist that I did not stick to my preface, and showed in the paper, before I concluded it, that I was enthusiastic on the subject of that operation. To answer this, let us examine the quotation which he made, and see if it authorized any such inference. I shall quote it *entire*, and not by fragments, as the *whole* quotation is necessary to the full understanding of the paragraph:

> "Internal section is especially indicated in all cases of stricture in the pendulous portion of the urethra, and especially in those cases located in or near the glans penis; here, from the nature of the structure, we know they are particularly rebellious to dilatation, and even after free incision, prone to return. No other operation has furnished more satisfactory results; *Dilatation*, *Divulsion*, and *Cauterization*, each leave the urethra with a tendency sooner or later to recontract and narrow down its calibre; so that none of them are entirely free of objections. Hence we consider it at least the part of sound judgment to select "Internal Urethrotomy" as the one which, upon rational grounds, offers the best chance of success. Although there is no operation for stricture more difficult to perform neatly and completely than this—none which requires more knowledge of the urethra, more skill in the use of the instrument, or tact in the management of the case. Still, there is none which will give more satisfactory results, or which is more apparent to the sufferer who seeks relief. With these views, we recommend and adopt it as the operation which, in the hands of a judicious surgeon, will furnish 'Sécurité, Simplicité, Célerité.'"

Now, this paragraph certainly does anything else than stamp me as an enthusiast upon the subject of urethrotomy; for it expressly states that strictures, "even after free incision, are prone to return." And when it is examined, I think it will be proved that it is not my '*ipse dixit*' alone which asserts that "internal urethrotomy is followed by more lasting results than divulsion," but rather is it the "*ipse dixit*" of Sir Henry

Thompson, "nomen clarum et venerabile," (as the author styles him) who positively asserts this opinion. "I am disposed to think at present, that a well-performed internal urethrotomy is more enduring in its results than any other operative proceeding."* *I* said, "no other operation has furnished more satisfactory results," *Sir Henry* goes further, and said, "*it is more enduring in its results.*" Sir Henry *is* authority on these subjects; I am yet a very young observer!

Nor is it my purpose that any one should infer any such thing, as that "his favorite method does not leave behind a similar tendency for the stricture to recur that both divulsion and cauterization," or any other method does; and if the author of that article had read carefully my report, he would have found on page 317 of Gaillard's Journal for the month of March, 1872, this clear and emphatic passage.

> "This I do as a precaution against the possibility of a closure of the stricture taking place, for I am free to confess it will again close up in ninety-nine cases out of every one hundred, unless this course is adopted, and I hazard the assertion, without fear of contradiction, that there is no course known to the Profession by which a stricture can be cured against all possibility of a relapse, and that the only hope we have is to use the bougie after the manner described."

This does not look very much like entertaining the opinion that strictures are not liable to recur after an operation of urethrotomy! And I feel assured that the writer of the article under consideration will not venture the assertion, "that the general experience of the Profession opposes most distinctly such a belief," nor after this will he charge me with *opposing* "the axiom to which almost all experienced surgeons assent." Will it not be more proper for him to credit me with the fact, that I myself have laid down that very same axiom to which he refers, as is proved by the paragraph just quoted?

Although I am not seeking to enter into a discussion of the varied operations for stricture, I would nevertheless like to understand whether the author of that paper means to say, when he uses the following language, "the recurrence is slower where there has been less traumatism," that there is less traumatism *after* rupturing a stricture with Holt's divulsor *than after* a smooth incision, made with an appropriate urethrotome? If so, does he give it as his individual opinion—or advance it as the established opinion of the best authors on the subject? If such an opinion does obtain with the Profession, it is new to me, and I must confess the theory is one which I am at a loss to comprehend.

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* Sir Henry Thompson, "Pathology and Treatment of Stricture." London, 1869, p. 175.

When he quotes me again, and makes me use this language, "as to divulsion on general principles I am opposed to it," I can reply, that if the author had not placed a period where I put a comma, the sentence would have fully explained itself. It is very true, that I am not in favor of divulsion, because I consider the urethra too delicate an organ to withstand such violent manipulation without receiving permanent injury; yet there are cases where I should not hesitate to employ, as I do, the method of Sir Henry Thompson, which he calls "over-distension," which is done very slowly, without shock, and which is a very different proceeding from divulsion, after the idea of Bernard Holt. I may not be informed, but I am under the impression that in this I would be sustained by the best living authority on the subject of Genito-Urinary Surgery.

As the writer of that paper has thought proper to mention a distinguished special surgeon, "our own agreeable, practical and sagacious Gouley, of New York," it may not weaken, but rather strengthen my position, if I give the views of Professor Gouley upon the subject of divulsion, as I have them before me at this moment, in a manuscript letter, received from him some year or two ago, "Holts' method, as it is called, (it is really Heurteloup's) is, in my opinion, unsurgical and too violent to afford permanent relief; I should say that it damages the urethra seriously at times, and for that reason I reject it as a general rule. Mr. Holt has done more to kill this method than anybody else, his six hundred cases (?) have weakened rather than strengthened his position, in my mind at least." This is the opinion of a surgeon of our own country, who has enjoyed a vast field of observation, and one who deservedly stands very high in his special branch; he thinks it *unsurgical* and too violent to afford permanent relief. I only opposed it "on general principles," because it was not deemed necessary to go into an argument to prove that an operation was not desirable where so much had been written against it already.

I find this communication is extending itself beyond the limits I had assigned to it, and I must bring it to a close. I do not deem it necessary to bring to my support the views of all the very distinguished gentlemen who stand opposed to divulsion; for I am not seeking to argue the point, nor do I desire to summon around me a cordon of witnesses like Civiale, Guyon, Trelat, Mercier, LeRoy, Maisonneuve, Reybard, Phillips, Ricord, Caudmont, Dzondi, Amussat; with a host of others who have flashed bright urethrotomes across the surgical field of Europe, to say nothing of such names as Physic, Pancoast, Gross, Otis, and other lesser lights on this side of the Atlantic, to sustain me in my views as a urethrotomist. My object has been not to seek support, but to place my opinions where I desired them to be—to show that I am no enthusiast upon the subject of any method of treatment, and that where I deem any course of treatment necessary, I adopt it, whether it be dilatation, "over-distension," cauterization or urethrotomy: I follow the motto on that brochure, "*Je prends le bien ou je le trouve.*"

Although having denied the charge that I am too much given to the operation of internal urethrotomy, yet I trust that I may not be considered wholly egotistic, when I say that I ought to be excused if I should become somewhat enthusiastic over my success, when I point to over two hundred (202) internal sections, and that, too, without a single accident, not one death; and to this date I am yet uninformed if one single patient does not remain perfectly satisfied with the result of the operation performed. With such a record, I say it would be very natural and easy to override the innate modesty of a surgeon, and see him become an enthusiast on the subject of Internal Urethrotomy. I am, very truly,

C. H. Mastin, M. D.

Kewanna, Fulton Co., Ind., May 28, 1874.

Prof. E. S. Gaillard, M. D.:

Permit me again to trespass upon your time and a place in your valuable journal, for the publication of an interesting and rare case of disease, which occurred in the northern part of this county. Through the kindness of my medical friend, James W. Brackett, M. D., of Rochester, Ind., who had the case in charge, I received the following history of Miss M., aged about 17 years, who, previous to the attack of the disease under consideration, enjoyed good health, no appearance of any disease of a cancerous character occurring in her father's family; yet her grand-father died from cancer in 1860.

More than thirty years ago, when I was studying medicine in New York, her disease was called osteo-sarcoma; we now term it, in our late works upon medicine, osteo-cephaloma or osteoid cancer.

About the first of this year, 1874, the tumor commenced forming, 2½ inches below the knee, over the tibia, and was about the size of a filbert when first noticed; without pain, and proceeded from the periosteum. The tumor was of nearly five months' duration before amputation; it then being the size of a saucer with fluctuating congestion of the surrounding surface. It was now opened, and continued to discharge a medullary or a gelatiniform substance for about five days before amputation. When opened, the osseous layers cracked under the knife, and in a very short time mortification followed. The examination of the tumor presented the cells radiating from the periosteum towards the periphery of the tumor, the upper portion being cellular. The periosteum was denuded from the entire length of the tibia and about the half of the fibula. Miss M. made a rapid recovery after amputation was performed, considering the extreme prostration which preceded the amputation, which was made at the lower third of the femur. Tonics and alteratives, and a general sustaining treatment were used in her case, and two weeks since she came to our town, six miles, with her parents.

The cancerous diathesis is affecting many more of the inhabitants of this portion of Indiana than formerly. This may be in consequence of the great change produced from the wet portion of the low and marshy lands being ditched, thus changing the type of the malarial diseases which formerly prevailed. Quite a number have died in this vicinity in the last few years from medullary sarcoma, affecting different families differently; the case I reported being the only one that recovered from this dreaded disease. During the months of March, April, and May, we have had more cases of pneumonia than through the whole winter. The character of the diseases now prevailing is attended with much hepatic disturbances; also, acute and chronic gastritis; the lungs being also implicated in very many instances; yet, as the cold winds and sudden changes give place to the warm and balmy air, filled, as it is, with all the varied combinations of sweet-smelling flowers, we will again enjoy our usual healthy season.

Very Respectfully,

W. T. Cleland, M. D.

PROCEEDINGS OF SOCIETIES.

"**Etsi non prosunt singula, juncta juvant.**"

Mason and Fleming County Medical Societies.

In accordance with previous arrangements, a meeting of delegates from the Mason and Fleming County Medical Societies was held at Flemingsburg, on July 20, 1874. Present: Drs. Cooper, Pickett, and Nelson, from Mason; and Drs. Plummer, Allen, J. N. Proctor, Abney, McDowell, and Yantes, from Fleming.

On motion of Dr. McDowell, Dr. Cooper was made President; on motion of Dr. Pickett, Dr. McDowell was made Secretary.

Dr. Cooper, on taking the chair, explained the purpose of the meeting; and, after some desultory remarks, it was unanimously agreed to proceed at once to a permanent organization.

Dr. Cooper, of Mason, was elected President; Dr. Plummer, of Fleming, was elected First Vice-President; Dr. Adamson, of Mason, was elected Second Vice-President; Dr. McDowell, of Fleming, was elected Recording Secretary; Dr. Pickett, of Mason, was elected Corresponding Secretary; Dr. Nelson, of Mason, was elected Treasurer.

On motion, the election of Censors was deferred to next meeting.

On motion, the President appointed Drs. Plummer, Pickett, McDowell, and Nelson a committee to draft Constitution and By-Laws for Society.

The committee reported Constitution and By-Laws, which were adopted. The Society to be known as the "Licking Valley District Medical Association."

On motion—

Resolved, That all members of the Mason and Fleming County Medical Societies be recognized as members, and the physicians of Nicholas and Bourbon counties be invited by the Secretary to coöperate with us.

On motion, the following preambles and resolutions were adopted.

WHEREAS, The requirements of some of the Medical Colleges of the United States are such that qualifications from students are made a secondary consideration, and often through fear of offending individuals, or rendering their colleges unpopular, diplomas are granted without making merit any test; and, whereas, we approve of a higher standard of qualifications and a more thorough course of study; therefore,

Resolved, That we, the members of the Licking Valley District Medical Association, do approve most heartily of the requirements for graduation (page 10 of the Catalogue of Bellevue Hospital Medical College), especially of that portion requiring two full courses of all applicants, and that part compelling applicants for the ad eundem degree to be members of some Medical Society.

Resolved, That a copy of these resolutions be forwarded to the Secretary of the Faculty of Bellevue Hospital Medical College, and to the editor of the "Richmond and Louisville Medical Journal."

On motion—

Resolved, That the President appoint a committee of three members to select subjects for the Essayist at each meeting.

Drs. Plummer, Pickett, and Proctor were appointed as such committee.

Dr. L. B. Abney was appointed Essayist.

Subject:—Post-Partum Hæmorrhage—Practical Mode of Preventing and Arresting it.

On motion—

Resolved, That the Secretary furnish a copy of the proceedings to the "Richmond and Louisville Medical Journal" for publication.

The Society then adjourned, to meet in Maysville on the second Monday in October, at 11½ o'clock, A. M.

LUCIEN McDOWELL, M. D.,
Secretary.

CHEMICAL AND PHARMACEUTICAL.

"Diruit, ædificat, mutat."---HOR.

Aconite in Headache.—Dr. Fothergill ("British Medical Journal") recommends the use of aconite in congestive headaches, attended with great contemporary coldness of the hands and feet. The remedy dilates the peripheral blood vessels, and so relieves the congested cerebral vessels.

Administration of Podophyllin in Habitual Constipation.—Van den Corput recommends the following formulæ: 1. Podophyllin, 20 centigrammes (3 grains); soap, 1 gramme (15 grs.); essence of fennel or of canella, as many drops as are sufficient; the mass to be divided into ten pills, of which from two to four are taken daily. 2. Podophyllin, 30 centigrammes (4½ grs.); extract of nux vomica, 50 centigrammes (7½ grs.); extract of belladonna, 30 centigrammes, to be divided into ten pills, of which two or three are a daily dose.—*Ex.*

Guarana in Lumbago.—Dr. Edward A. Rawson reports ("Irish Hospital Gazette") the very happy effects of guarana on his own person, when suffering severely from lumbago. From fifteen to forty grains were taken in hot water with cream and sugar, with the invariable effect of relieving or putting an end to the paroxysm. He has also had good results from its use in other varieties of chronic rheumatism.

Jaborandi—A New Sudorific and Sialagogue.—Dr. Continho, of Pernambuco, has introduced to the notice of the Profession a plant hitherto known only in Brazil. According to the testimony of Rabuteau, this plant posseses the most decided diaphoretic qualities, and, in addition, acts as a powerful sialagogue. An infusion of fifty grains of the powdered leaf in about six ounces of water, although partaken of when cold, produced within three-quarters of hour profuse sweating, accompanied by free salivation.—*Ex.*

Bitters.—The State Assayer of Rhode Island has made a report which shows very effectually of what ordinary bitters are composed. I herewith submit to you my report of the various bitters sold in this market, giving, as you desired, their percentage of alcohol, and forming of them three classes:

First Class—This class contains alcohol as follows; Hostetter's stomach bitters, 43.20; Baker's stomach bitters, 40.57; Drake's plantation bitters, 30.24; Rush's bitters for the stomach's "sake," 34.30; California wine bitters, 18.20.

Third Class—This class contains alcohol as follows: Dr. Holland's German bitters, 20.85; Oxygenated bitters, 19.23; Walker's vinegar bitters, 7.50. H. W. Vaughan, State Assayer. —*The Druggist.*

Comparison between the Action of Bromal Hydrate and Chloral Hydrate.—1. Bromal hydrate is a more active substance physiologically than chloral hydrate. A rabbit weighing four pounds requires about twenty grains of chloral to cause death, whereas four or five grains of bromal would be quite sufficient to kill.

2. Chloral hydrate produces in small doses, or soon after a large dose, marked hyperæsthesia followed by anæsthesia. Bromal hydrate never produces hyperæsthesia, and anæsthesia only when the animal is in such a state of coma that there is no hope of its recovery.

3. Chloral hydrate does not usually produce great contraction of the pupil. Bromal hydrate always does.

4. Chloral hydrate acts chiefly on the cerebral hemispheres, and never, so far as I know, has been known to cause convulsions. Bromal hydrate acts less vigorously on the hemispheres, and more on the ganglia at the base of the brain and on the spinal cord, the animal frequently dying in a state of opisthotonos.

5. After death from chloral hydrate, fluid is rarely found in the shut sacs of the body. In the case of bromal hydrate, fluid is almost invariably found.

6. Chloral hydrate does not usually stimulate the salivary glands to the same extent as bromal hydrate does, but in this instance there are exceptional cases in which chloral hydrate causes excessive secretion of saliva in animals.—*Edinburgh Med. Jour.*

Jaborandi—In the "Journal de Therapeutique" for March, there occurs a notice of a "new medicine, diaphoretic and sialagogue, the Jaborandi of Brazil," by Dr. Continho, of Rio Janeiro.

Jaborandi, the name given by the Indians to this new medicine, is a shrub which grows in the interior of certain provinces of the North of Brazil, and whose leaves resemble those of the laurel of Apollo. The leaves have no odor except when bruised, but then they exhale an aromatic odor. Their taste is slightly acid, without any bitterness, and unlike that of any other plant used in medicine.

The leaves and small branches are bruised, and from four to six grammes are infused in a cup of hot water. Ten minutes after a cup of this infusion has been administered, there comes on an abundant secretion of saliva—to such an extent that a litre and upwards has been collected in the space of two hours; and frequently the patient can hardly speak on account of the abundance of liquid in his mouth. The bronchial secretion is not less abundant, and so great is the perspiration, that the patient has frequently to change his linen in the course of a few hours. One patient, to whom had been administered a cup of this infusion, compared the effects produced to an "internal vapor-bath." The effects continue for four or five hours. It is not necessary to administer this drug hot; it produces its effects even when given cold; and, unlike sudorifics generally, it is in no way dependent on the rise of temperature in the body for the production of its effects. It appears to act by directly stimulating the sweat-secreting glands.

In an article in the same number of the "Journal de Therapeutique," Professor Gubler, of Paris, confirms the assertions of Dr. Continho, and says that the effects of jaborandi are extremely remarkable, and the evidence irresistible. This medicine has been tried a sufficient number of times at the Hospital Beaujon, and has always shown itself a powerful diaphoretic, and an incomparable sialagogue. He tells us that in a few minutes after the medicine has been taken, the sweat is streaming over the face and whole body. The saliva flows in great abundance, and the bronchial secretion is greatly increased. In two cases there was diarrhœa.

One of Professor Gubler's pupils, who perspired with great difficulty, perspired very abundantly after drinking a single cup of the infusion of jaborandi scarcely hot. He recommends it in the early stages of affections arising from cold; in bronchitis, diabetes, and dropsies, and in maladies due to miasma and morbid poisons, as the eruptive fevers.

Much speculation exists regarding this remarkable plant. Some maintain that it belongs to the Piperaceæ, others assert that it belongs to the Rutaceæ, but there is no sufficient reason for believing that it belongs to either of these natural orders. No doubt many plants belonging to both these natural orders are called by the Indians of Brazil Jaborandi; but it must be borne in mind that Jaborandi is a name given to plants on account of possessing stimulating properties, and not because of the botanical characters which they possess.

This much appears to be established: The leaf is what botanists call a compound leaf—impari-pinnate—occasionally more than three decimetres in length. The leaflets are eight to ten in number, ten to twelve centimetres in length, and three to four centimetres in breadth. The leaflets are scarcely opposite, oval, elongated, elliptical, emarginate, and slightly unequal at the base, like the leaves of the genus *Ulmus*. They are glabrous, smooth, somewhat thickened, and brittle when dry. They are shortly petioled or nearly sessile. The petiolule is cylindrical, and scarcely thickened at the point of insertion into the common petiole.

From the leaf alone it is quite impossible to determine the order, far less the genus or species of the Jaborandi; and we must remain in ignorance of the plant which yields this remarkable medicine till we procure the flower and fruit of the shrub.

Dr. Continho, who is a distinguished botanist, has promised
to publish shortly a work on the actions and uses of th
esting medicine, giving the natural history of t
botanical characters and its chemical analysis
drawings of the entire plant.

M. Rabuteau has made a chemical
Jaborandi, and has come to the conc
tain: 1. A volatile principle; 2. A
perfectly flavorless; 3. A part insol
in alcohol, and having a bitter flavor; and by experiments he
has come to the conclusion that it is the last of these three in which all the virtues reside. It is the bitter alcoholic extract alone which possesses the power of producing the remarkable effects of Jaborandi.—*Ex.*

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

"Judex damnatur cum nocens absolvitur."

HERPES GESTATIONIS—A RARE AFFECTION OF THE SKIN PECULIAR TO PREGNANCY. By L. DUNCAN BULKLEY, M. D. New York: Wm. Wood & Co. 1874.

This monograph is one of much value. It embodies the result of a careful study and observation of the morbid condition of which it treats. After showing the rarity of the disease, the author appends this useful and concise summary:

"The peculiar features of this remarkable disease, as gathered from the preceding clinical histories of nine almost precisely similar cases, recorded by eight observers during a period of twenty years, may be thus summed up:

"1. There is an affection of the skin directly dependent upon the gravid state of the uterus, which may make its appearance at any period of gestation up to the seventh month, and generally continues until the organ is emptied of its contents, and has in a measure resumed its former state; this eruption is very apt, moreover, to recur at each successive conception.

"2. The cutaneous manifestations are chiefly an intense irritation, consisting of burning, itching, or stinging, and sometimes pains, with the development of erythema, papules, vesicles, and bullæ up to the size of a hen's egg, the majority of the blebs, however, seldom surpassing in size a large bulla of herpes. These vesicles are commonly in groups, but do not follow any definite nerve-tracks, appearing first generally on the extremities and afterwards involving the larger part of the body. Exhaustion may ensue from the cutaneous irritation, but the disease is non-febrile.

"3. The eruptive disease does not terminate at once after delivery, but slowly retrogrades, by the development of fewer and fewer vesicles at increased intervals, until the disposition thereto ceases entirely. An outburst of greater or less severity is most likely to happen on the third day; it is rare for any manifestations of the disease to remain a month after parturition.

"4. This affection is sometimes accompanied or followed by other neurotic manifestations, as erythema, urticaria, and neuralgia, which may continue in the interval of conception, while in many instances the patient experiences perfect health in the interim.

"5. This eruption has occasionally been the first indication that impregnation has taken place.

"6. The majority of the cases have been uninfluenced by treatment, relief occurring only on the emptying of the uterus.

"7. Children are not, as a rule, affected by the eruption in the mother, although in one case it was accompanied in two instances by a still-birth; here, however, the first eruption was followed by the delivery of a living child, whereas the second conception gave a still-born child without any maternal eruption."

The author gives his views as to the nature and cause of the disease as follows:

"The analogies and illustrations cited, together with the clinical histories of the nine cases, in seven of which we have the history of recurrence with each gestation and disappearance on parturition, as a rule, are to us sufficient proof that the eruption is essentially connected with and dependent on the gravid state of the uterus, and is, moreover, a neurosis.

"The indications for treatment seemed to be for soothing antipruritic local applications and powerful tonics, especially those directed to the nervous system. The local remedy employed was the "*liquor picis alkalinus*," which we have before presented to the Profession.*

" ℞—Picis Liquidæ, ℥ij.;
Potass. Causticæ, ℥i.;
Aquæ Font., ℥v.

"M. Use diluted one teaspoonful to four ounces of water, followed by inunctions of mutton tallow. The strength of the diluted wash was doubled later, and may be used in far greater strength. This afforded very great relief, and, although other remedies were tried, was returned to as the best; indeed, answering all requirements. The recumbent posture taken after the disease had lasted two weeks undoubtedly assisted the cure and saved much suffering. The internal medication consisted of pills of iron, quinine, and strychnine from the beginning to the end, interrupted only on the occasion of one or two exacerbations, when a diuretic mixture, composed of acetate of potash, nitre, taraxacum, and rumex, caused immediate amelioration of feelings. Arsenic and cod-liver oil, added at a later period on the suggestion of Dr. Draper, contributed their quota to the result.

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* Archives of Scientific and Practical Medicine (Brown-Séquard), February, 1873.

"We lay considerable stress upon a dietary element of treatment which was begun shortly after the appearance of the disease, and which was continued long after confinement—viz., the taking of a considerable portion of oatmeal just before retiring every night; this was replaced by bread and milk, later. Of this plan of nourishment we can speak in the highest terms."

A HAND-BOOK OF OBSTETRIC SURGERY, OR SHORT RULES OF Practice in every Emergency, from the Simplest to the most Formidable Operations Connected with the Science of Obstetricy. With numerous Illustrations. By CHARLES CLAY, M. D., Late Senior Surgeon and Lecturer on Midwifery, St. Mary's Hospital, Manchester, etc., etc. From the Third London Edition. Philadelphia: Lindsay & Blakiston. 1874.

One says, almost involuntarily, when he reads the title-page of this work, "this is the volume exactly that I have long wished would be published; the very work that I wish to have." When he reads the work, he will be more pleased with his discriminative wisdom, for the book is exactly what every physician has long desired to possess, and one which it is safe to say each physician will possess as soon as he knows where it may be obtained. Though familiar in England, it has just been published in this country. Indeed, it has rapidly, in London, reached its third edition. As promised in the title-page, it is a work for every surgical emergency. The physician here has described by the pen of an acknowledged master, not only what is to be done in the great operations which few are called upon to perform, but in those minor operations which form part of the daily life of every practitioner; operations so minor in character that few describe them, and yet when well performed, form so much of the pleasure and reputation of every practitioner. The author describes succinctly but well every operation in obstetricy, from the passing of the catheter and the cutting of the umbilical cord to the operation of gastrotomy and the Cæsarean section. The use of the forceps, vectis, blunt hook, are clearly described, and the author finds nothing too small or too great for his graphic and accomplished pen. One of the best chapters in the volume is that upon chloroform. One hundred and eighty operations are described in this work, and described by one whose opinions are valuable to masters as well as pupils. One of the great charms of the volume is its condensed and lucid style. One may form a clear conception of this by the simple statement, that Dr. Clay, in 350 pages, describes 180 operations, and in addition adds much of comment and experience valuable to all.

MISCELLANEOUS.

"Non omnes eadem mirantur ament que."

Removal of a Kidney from a Human Subject.—Dr. Brandt (" Weiner Medinzische Wochenscrift") describes a case in which a healthy kidney was removed from a man. The subject was twenty-five years old and healthy. He was stabbed with a knife in the left hypochondrium. Hæmorrhage followed, and in three hours after the accident a fleshy looking tumor was expelled through the wound during a fit of coughing. Dr. Brandt saw him twenty-four hours after the injury. A careful examination proved that it was the left kidney. Its surface with the ureter was torn in some parts, and allowed the escape of a fluid at first yellowish and transparent, but afterwards reddish and sometimes turbid yellow. This was shown by examination to be urine. Dr. Brandt decided that the organ was useless, that its retention endangered life, and that it would be best to remove it. Hence, on the fourth day after the injury, he tied the pedicle of the tumor and cut it away with a knife. This was done on June 7th, and on the 23d the patient left the hospital. No symptoms of uræmia or of peritonitis occurred during the progress of the case. The amount of the urine passed daily during the period of convalescence was carefully observed. The first day it was 620 grammes, and the twenty-second 1,513 grammes. The days between showed a gradual increase. It was acid throughout—specific gravity varied from 1.010 to 1.040—was normal in composition; reddish yellow at first but afterwards clear yellow. Dr. Brandt had seen the man several times since the operation. He showed no signs of heart disease, but complains of a sense of oppression and fatigue, especially in going up stairs, and says that he can not work as well as before.—*Brit. Med. Jour.*

Retrogression of the Graafian Follicle.—M. Slavjansky has recently written a paper in the "Archives de Physiologie," which is thus abstracted in the "Medical Record:" "1. The Graafian follicles are developed from the primordial follicles, and acquire a greater or less degree of maturity during the whole of life, from the first month after birth till about the age of forty. 2. The greater part of the follicles are not ripe, do not burst, and do not discharge their contents, but undergo atresia, presenting an almost complete analogy with that of the formation of the corpora lutea. 3. The development and maturation of the Graafian follicles are not produced periodically in a regular manner, and no connection exists between them and menstruation. 4. Menstruation constitutes a physiological phenomenon, quite independent of the development and maturation of the follicles. 5. The rupture of follicles more or less mature always bears a certain relation to congestions of the genital organs, produced by any cause whatever. 6. There exist certain maladies (ague, poisoning, etc.,) which produce atresia of the follicles at different periods of their development, after a parenchymatous inflammation of the ovary."—*London Microscopical Journal.*

Early Pregnancy.—Dr. Robert P. Harris gives the following list of ages of authenticated cases of early deliveries:

1. Twelve years and nine months, with second child at fourteen years.
2. Thirteen years lacking ten days.
3. Thirteen years, with second child at sixteen.
4. Fifteen years, twins.
5. Eleven years and one month.
6. Ten years and eight months.
7. Eleven years and three months.

All these belonged to the lower walks of life, amid vicious surroundings. Menstrual precocity belongs to no class in society, but it seldom leads to early pregnancy except in those who have lacked careful moral training. Thus, moral influences are the main preventive to early maternity.—*Amer. Jour. Obs.*

Jayne's Carminative Balsam.—Some thirty years ago there lived in the southern part of New Jersey a mechanic or laboring man who suffered a long time from chronic diarrhœa. He was cured at last by a prescription obtained from a physician residing, I think, at Port Elizabeth. He removed to Philadelphia, and transformed himself into a doctor more promptly and more economically even than doctors are wont to be made by the bastard manufactory of the man called Dr. Buchanan. And so Dr. Jayne and his "Carminative Balsam" had their birth. By the foolishness of advertising the Carminative Balsam became a success. The name of Jayne acquired value as capital in trade, and was used to give currency to vermifuges, expectorants, and other preparations. And thus did the obscure and ignorant farm-hand become a doctor and a millionaire, not so much by his brains, as by the accident of a bowel complaint.—*Exchanye.*

The Profession have sustained a great loss in the death of Dr. Thomas P. Atkinson, of Virginia. He died at Buffalo Springs, Va., August 30, 1874.

MEDICAL NEWS.

'Nulla dies sine linea."

The Nottingham Coroner and Philadelphia Doctors.—A very proper inquiry has been held by the Coroner of Nottingham into the case of Elizabeth Ann Elliss, who had the misfortune to be attended by an American—or, to speak more accurately, a Philadelphia—doctor, John Wilson, until she was totally unconscious and dying, when Dr. Snell was called in. According to Philadelphia principles, the patient had erysipelas; according to Dr. Snell, the indications of renal disease were so plain that only a Philadelphia doctor would have overlooked them. The jury passed the following verdict: "That deceased died from disease of the kidneys, and the jury regret that proper medical advice was not obtained earlier." The Coroner addressed Mr. Wilson in clear terms, saying to him, that he had no right to practice as a medical man, and that he (the Coroner) would hold an inquest in every case in which death occurred under his treatment. The woman who fetched Wilson in said she saw "Dr. Wilson" over the door, and so was led to ask him to attend. This is the real offence of Wilson—using a title implying registration and proper medical qualification on the strength of a Philadelphia certificate. We should advise him to call himself a herbalist, and to use less virulent substances than green hellebore. The public of Nottingham must feel grateful to the Coroner for his conduct in this matter.—*London Lancet.* ——— *The Patriotic Fund School.*—The attention which has been called to the Patriotic Fund Schools, by the lamented death of Dr. Anstie, will certainly demand a searching inquiry into their state and government, and into the remote causes of the illness which has prevailed there.—*Ib.* ———*The* advocates of cremation, conscious, as we suppose, of the goodness of their cause, are disposed to proceed with more zeal than discretion. A meeting of the West Hartlepool Improvement Commissioners was held on the 8th instant for the purpose of making arrangements for enlarging the cemetery of that town; and Mr. Turnbull, an enterprising member thereof, took the subject by the horns, and gave notice of a motion in favor of cremation. But the wives and mothers located in this flourishing port banded together, got up a petition, besieged the Council Chamber, and headed by one Mrs. Peart, gave the rash Commissioner an unpleasantly warm reception. The motion found no seconder, and fell to the ground, and it is reported that Mr. Turnbull narrowly escaped the same fate from the town cliff.—*Ib.*———*Surgeon-Major Porter*, Assistant Professor of Military Surgery at Netley, has been presented with the Bronze Cross by the French Societies for Aid to the Sick and Wounded of Armies, in recognition of his services during the late Franco-Prussian war.—*Ib.*———*The* movement for a monument to Liebig is making progress in Germany. Some £7,500 is the estimated cost, and of this nearly two-thirds have been subscribed—the far greater part, of course, by Germany. England, numerous and deep as are her obligations to the father of agricultural chemistry, stands very low on the subscription list, being, in fact, outstripped by Italy, who, thanks to her *rapprochement* with Germany, and to the scientific resuscitation encouraged by her *savant* and statesman, Quintino Sella, comes next as a subscriber to Germany herself. *Ib.*———*Relief* to the sick and wounded in war has always been a popular movement in Russia. The Society organized with that object at St. Petersburg has amassed nearly seventeen million rubles. For the first quarter of the present year its expenses for matériel and the training of ambulance attendants amounted to 800,000 rubles, while its income was considerably in excess of that sum. What with annual subscriptions and donations, the receipts of the Society amount to several million rubles yearly.—*Ib.* ———*An* epidemic of typhoid fever is reported from the hamlet of Brierly Lane, Brandford. Seventy persons have already been attacked with the disease. Dr. Thorne, one of the Local Government Board Inspectors, who has been down in the locality inquiring into the conditions of the outbreak, gives evidence strongly in favor of the theory of milk contamination.—*Ib.*

EDITORIAL.

"Nullius addictus jurare in verba magistri."—Hor.

Francis Edmund Anstie, M. D., F. R. C. P.—The Medical Profession throughout the civilized world will learn with profound sorrow of the death of Dr. Francis Edmund Anstie, the editor of the "London Practitioner," and one of the most distinguished physicians of the British Empire. No one was working with greater success, fidelity, and efficiency, and few physicians had contributed, in recent years, more positive aid to the science of medicine. Cut down suddenly in the very prime of life, he died a martyr to the cause of a philanthropy which he had peculiarly and prominently represented. The following sketch of his life will be read with great interest:

"The lamented death of Dr. Anstie is a matter of far more than merely professional interest and concern. Of the void which it creates, and of the lessons which it teaches, we shall have to speak elsewhere; and in this place we do but put on record some fragments of his personal history, which may assist in rendering more vivid the recollections of his many friends.

"Francis Edmund Anstie was born at Devizes on the 11th of December, 1833. He was the second son of a manufacturer in easy circumstances; and his family had been established in the locality for several generations. From this, and from their personal qualities, it came about that his father held an almost patriarchal position over his people, and employed many whose ancestors had worked for his own for more than a century. The eldest son was designed to carry on the good traditions of the house; and Francis, after being educated at a private school in Devizes, which he left in 1849, was articled in the following year to his cousin, Mr. Thomas Anstie, a medical practitioner of the town. According to the custom of those days, he remained with his cousin three years; and entered at King's College in 1853. He passed through the ordinary medical curriculum with credit, and gained the Gill Prize for general proficiency at the end of his first, winter session. He was a steady worker, both at the College and in the hospital, where he was an enthusiastic disciple of Dr. Todd, under whom he served as clinical clerk, and whose teaching gave a manifest color to his whole professional life. In 1857, being as yet undecided with regard to his future line of practice, he took the post of resident physician-accoucheur's assistant in the hospital, where his kindly and genial disposition endeared him to his fellow-residents, Dr. A. Meadows and Mr. Christopher Heath, and his fine voice contributed not a little to the attractions of the musical evenings which many of the old students will so well remember. In the autumn of the same year, he took his M. B. degree at the University of London, and was for some time occupied in administering chloroform for Sir W. Fergusson. After this, he lived for a short time in Stamford street; but in 1859 he removed to Onslow square, and was appointed physician to the Chelsea Dispensary. By this time he had determined to practice medicine; and having been appointed pathologist to the Westminster Hospital, he was elected assistant physician and co-lecturer on Forensic Medicine in 1860, in the vacancy caused by the transference of Dr. Russell Reynolds to University College. He subsequently exchanged his lectureship for that on Materia Medica, which he held for many years, his course being devoted rather to the therapeutic action of drugs than to matters of mere detail. At this time, his house in Onslow square was the place of meeting of a circle of friends, who came together on Saturday evenings for talk and music, and who aimed at a high standard of artistic, literary, and scientific conversation, in which Dr. Anstie was not only well qualified to take a prominent part, but also, by his frank and genial temperament, to form a bond of union between his associates. In 1862 he married, and from thence forward devoted himself far more closely than before to the practical business of his calling, displaying a power of steady and sustained work that had previously lain in abeyance, and that rapidly brought him into the front rank of his contemporaries. In 1863 he removed to the house in Wimpole street, in which the rest of his life was spent, and in the following year published his well-known work on Stimulants and Narcotics, chiefly the result of experimental research conducted at the Westminster Hospital. His tenure of office as assistant physician was prolonged for thirteen years, during which he applied himself to the work of the out-patient department with an energy and solicitude that never flagged. About a year ago he succeeded to the post of physician, and was enabled to give full scope in the wards to those powers of clinical teaching which his long work among out-patients had cultivated to the utmost. For a short time he shared the lectureship on Medicine with Dr. Basham, but had lately given the full course in a manner which elicited the warm admiration of those who heard him. Besides his appointments at Westminster Hospital, he was physician to the Belgrave Hospital for Children, and consulting physician to the Royal South London Ophthalmic Hospital. It need no longer be a secret that the most flattering overtures were made to him from New York, to settle there as a hospital physician and consultant, and a lecturer on the principles and practice of physic; but family reasons, and the feeling of growing success in England, prevented him from assenting to a proposal which was none the less gratifying that it came from those who knew him only by his professional reputation. His last work, and that on which his future fame will chiefly rest, was his admirable treatise on Neuralgia, on a second edition of which he was engaged at the time of his decease.

"Besides his books, Dr. Anstie was a frequent writer of more fugitive literature. He contributed occasional articles on scientific subjects to various non-medical papers, and was for years a member of the editorial staff of this journal. In that capacity he was the chief member of "The Lancet" Commission to inquire into the state of work-houses, and took a principal part in conducting the inquiries and in writing the reports. In July, 1869, he became sole editor of the " Practitioner," which, during the first year of its existence, he had edited in conjunction with Dr. Lawson, and which has ever since been indebted for its high position to his sound judgment, his constant industry, and his ready pen.

"Dr. Anstie became a Fellow of the College of Physicians in 1865, and was soon recognized as a power in that venerable Institution, where his voice was raised in support of every proposal which was calculated to increase the dignity or to extend the usefulness of the College. He was much interested in the recent improvements in the manner of electing Fellows, as well as in the negotiations for the conjoint scheme of examination; and he was the prime mover of the petition to the Premier on the subject of overcrowded dwellings of the poor. In two directions, therefore, in the reform of work-houses and in the limitation of the power of railways to sweep away needful habitations, his efforts led immediately to legislation for the public good.

"The circumstance of his death will form part of the history of the Profession. The schools of the Patriotic Fund at Wandsworth had been visited by a somewhat strange succession of illnesses, and at last some of the children were attacked by a rapidly fatal form of peritonitis. Dr. Anstie was called in to the assistance of the medical officer, and he made a careful examination both of the premises and of the patients. He was at the time suffering from overwork and want of rest, and was perhaps hardly in a state to undertake the oftentimes dangerous duty of medico-sanitary inspection; but, after accomplishing it, he made, on Sunday, the 9th, a post-mortem examination of one of the children who had died from peritonitis. Whilst thus engaged the middle finger of the right hand was accidentally punctured by a needle. He washed and sucked the wound immediately, and on Tuesday mentioned the occurrence to some of his friends, but expressed a hope that no harm would result from it. On Wednesday he felt ill, and complained of pain in the right armpit. During the afternoon he was so chilly that he sat before a fire wearing an overcoat. Dining with a friend in the evening, he spoke of having poisoned his hand, and said that he had so much pain in the armpit that he feared he should have an abscess there. The pain in the arm made it impossible for him to put on or take off his great coat without assistance. He still complained of feeling cold, and appeared to be depressed in spirits. On Thursday he was confined to his bed, and Mr. Brudenell Carter found him with a dry tongue, a dry, hot skin, and complaining of distressing headache, and of much pain over the right pectoral region. During the day the symptoms increased in intensity, and in the evening Mr. Carter wrote to Mrs. Anstie, who was in the country with her children, asking her to return home early in the morning. After a restless night the patient was still worse on Friday, and the assistance of Dr. George Johnson was obtained, who has favored us with a narrative, which we give in his own words:

"'I first saw Dr. Anstie with Mr. Brudenell Carter at 3 P. M. on Friday, the 11th instant. He was then delirious and quite unable to give us a history of his illness. The tongue was dry; the temperature 105°; there was an erysipelatous blush about the size of the palm of the hand over the right pectoral muscle; there was excessive tenderness on pressure in the right axilla and over the front of the chest on the right side; the slightest movement of the arm elicited a cry of pain; there was no appearance of inflammation about the wound on the hand or up the arm. At half-past nine in the evening I again saw the patient, in consultation with Dr. Burdon Sanderson and Mr. Carter. His condition remained unchanged. At half past nine on Saturday morning I again met Mr. Carter. We found the breathing was very rapid; there was a distinct friction sound over the middle and lower lobe of the right lung, and dullness on percussion over the same space; the erysipelatous redness and the tenderness on pressure remained the same. The urine was highly albuminous, and contained numerous epithelial casts. About the middle of the day symptoms of a blood-clot at the right side of the heart came on; the features were livid; the breathing rapid and shallow; consciousness was rapidly lost, and death occurred at 2½ P. M.

"'It was not thought necessary or desirable to make a post-mortem examination. The nature of the disease was obvious. A poison absorbed from the wound of the hand had caused diffuse cellulitis over the right side of the chest, acute pleuropneumonia, and general blood-poisoning. I may add that Dr. Sanderson entirely concurs with me in the opinion which I have here expressed as to the origin and nature of Dr. Anstie's illness.'"

"To the history thus told there is nothing to add. It remains only that we should endeavor, for the benefit of those to whom he was not known, to sketch in some faint and imperfect outline the personal character of the departed. Dr. Anstie combined with his versatile and unflagging industry a singularly affectionate and enthusiastic temperament, and a kindness of heart that never varied. He had no enemies but those whose enmity was a tribute to his worth. He had more, and more warmly attached friends than fall to the lot of any but the very few. Among those who followed him to his grave on Wednesday, there must have been some forty or fifty who had been his fellow-students, and whose cordial intimacy with him had stood the test of one-and-twenty years. It was well said of him by the 'Times,' 'that his hatred of oppression or wrong-doing, his love of truth for its own sake, his generous and chivalrous character, had endeared him to all who were brought within the range of his personal influence. Of a warm heart and a somewhat combative temperament, he was engaged in many controversies, but he never suffered his share in them to degenerate into personality, and never forgot to distinguish between the abuses he condemned and the possibly innocent persons who administered them.' He was, indeed, *sans peur et sans reproche*. By those who were so long associated with him on this journal he will be deeply and sincerely mourned, and more deeply still, but not more sincerely, by the widow and three children upon whose grief we can not venture to intrude.

But a few days before his fatal illness he walked with Mrs. Anstie past the little church-yard of Friern Barnet, and, observing the peacefulness and beauty of the spot, remarked that it would be good to rest there. The half wish implied in his words has been respected, and at Friern Barnet his mortal remains have been deposited. The history of the school illnesses shows that he was, although indirectly, a victim of the popular indifference to sanitary matters, and it is necessary to borrow largely of his own charity, in order to forgive the mismanagement which laid him low."

BREVITIES.

The "Chicago Medical Times," a monthly journal of Eclectic Medicine and Surgery (Anson L. Clark, M. D., and H. D. Garrison, M. D., editors) contains in its August number a most inexcusable falsehood. The facts are as follows: A young man (Stoddard) from the Bennett Medical College endeavored to enter two of the Medical Colleges here, claiming that he was a second course student, and seeking to come forward for graduation in the spring. He said that he had not known the character of the Bennett Medical College when he entered it, and desired to graduate in a respectable medical Institution. He was politely informed, in two Medical Colleges here, that his course in an Eclectic College could not be recognized by any respectable medical school, and that he must enter as a first-course student. He left, and took the only diploma possible. ——The excellent address of Dr. B. F. Kittrel, Black Hawk, Miss., was delivered before the Yazoo District High School.—— The "University of Pennsylvania" has been transferred into a very large and imposing structure just completed. This, the oldest medical College in this country, in its equipment and Faculty, has long been unsurpassed; it has now increased its facilities and attractions, by the erection of a really magnificent structure for a College building.

THE RICHMOND AND LOUISVILLE

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ORIGINAL COMMUNICATIONS.

"Qui docet discit."

ART. I.—URONOLOGY AND ITS PRACTICAL APPLICATIONS—A GUIDE TO THE EXAMINATION OF URINE AND ITS DIAGNOSTIC VALUE, WITH EXTRACTS FROM THE WORKS OF THE MOST MODERN INVESTIGATORS. By GEORGE M. KOBER, M. D., Washington, D. C.

In the previous number of this Journal we considered abnormal urine, its odor, specific gravity, reäction, urea, creatine, and creatinine, uric acid, the urates and phosphates. We shall now continue the subject, and commence with the consideration of

THE CHLORIDES.

We know that the presence of the chlorides in the blood and urine depends upon their introduction into the system in the food; that they enter partly into the formation of tissue, and that all superfluity is removed by the kidneys and other emunctories of the body. Whenever we find, therefore, an excess of the chlorides, particularly of the chloride of sodium, in urine, and the amount introduced is inadequate to account for it, it is in all probability derived from, and represents change of tissue. In intermittent fever, there is an excess of chlorides in the urine, during the cold and hot stage. Some pathologists believe this to be due to an increased blood pressure in the Malpighian bodies during the cold stage. Vogel states, that in diabetes insipidus, the chlorides are in many cases considerably increased; the same is also true in dropsical affections, as it often accumulates for a considerable time along with an effusion in the tissue, and is freely eliminated whenever the kidneys perform their function with unwonted activity. It is clear that during the time of its accumulation in the transudation, it must be notably diminished in the urine. An increase after diminution is always regarded as a favorable sign. In the acute inflammatory affections, as pericarditis, pleurisy, phthisis pulmonalis, acute rheumatism, acute and chronic Bright's disease, cholera, typhus and typhoid fever, scarlatina, erysipelas, and puerperal fever.

In pneumonia, during the state of hepatization, it is entirely absent, and reäppears during resolution.

It is stated by good authority that it is either accumulated in the inflamed portion of the lung, or the kidneys have temporarily lost the power of excreting the chlorides.

I am inclined to believe that the diminution of the chlorides in most of the affections enumerated above, is in a great measure dependent upon a less amount introduced into the system, and as physiology has taught me that chloride of sodium is not only discharged from the system in urine, but also in mucus, cutaneous perspiration, and other secretions, I explain its diminution or absence in the urine by the fact that the skin and mucous membrane perform their functions quite actively during disease, stimulated as they are by the administration of medicine, and may thus rid the system of the small amount of chlorides introduced.

Dr. Beale has shown that there is a large amount of chloride of sodium contained in the sputa of pneumonic patients, and argues from this fact, that in pneumonia, chloride of sodium is determined to the inflamed lung.

I am aware that chloride of sodium does accumulate, to a certain extent, in the inflamed lung, and the amount must depend upon the extent and amount of exudation, and that, therefore, no more chloride of sodium will be found in the diseased lung than would naturally find its way in the exudation of *any* inflamed part of the body. The presence of chloride of sodium in the sputa of pneumonic patients, as proven by Dr. Beale, would rather sustain my argument, that the chloride is not *all* retained in the system, but only so much of it as goes in solution with the exudation to the inflamed part, and that the rest is eliminated in the mucus discharges, etc., since the sputa, of which he speaks, can not have reference to the expectoration of the exudation, which rarely, if ever, occurs in pneumonic patients, but simply to the sputa, consisting of mucus, etc., the result of hyperæmia of the mucous membrane lining the bronchial tubes, and the consequent hyper-secretion of mucus. The diminution of the chloride of sodium in the urine, during bronchitis, can also be explained in this way. It has been found in the discharges of cholera patients, while absent in the urine; and, in fact, in all transudations and exudations. Now, all of this would go to prove that chloride of sodium [in spite of not being eliminated by the kidneys in these affections] is not altogether retained in the system.

Practically, it matters little to know the cause of absence, increase, and diminution of this salt; the diagnostic value remains the same.

Chloride of sodium is easily *detected;* the urine is to be acidulated with nitric acid, and a solution of nitrate of silver added; a dense white precipitate of chloride of silver quickly takes place; the amount of the chloride is estimated by comparison with healthy urine.

The average amount of chlorine excreted in twenty-four hours in health is about 8.21 grammes, or 126.76 grains; 13.6 grammes, or 210 grains of chloride of sodium were the chloride always united with that substance, an amount which Dr. Parkes thinks too great. Vogel and Parkes consider the mean to be 7 grammes, or 108 grains = 11.5 grammes, or 177 grains of chloride of sodium in twenty-four hours; the range above and below the mean being from 30 to 60 per cent. The weight of the body is to be considered.

Estimation of Chlorides.—They are calculated as "chloride of sodium"; the test solutions required are, the "standard solution of the nitrate of mercury" and the baryta solution. The method was devised by Liebig, and its principle is as follows: If the solution of the nitrate of mercury, free from any excess of acid, is added to a solution of urea, a "white gelatinous precipitate" is produced, containing urea and oxide of mercury in the proportion of one equivalent of the former to four equivalents of the latter. But when "*chloride of sodium*" is present in the solution, "*the precipitate does not occur until all the chloride of sodium is converted into chloride of mercury* (*sublimate*) *and nitrate of soda*," the solution "*remaining clear.*" If the exact point be overstepped, the excess of mercury immediately produces the precipitate above described, so that the *urea* present acts as an indicator of the end of the process. It is, therefore, easy to ascertain the proportion of chlorides in any given sample of urine by this method, if the strength of the mercurial solution is known; since 1 equivalent of oxide of mercury converts 1 equivalent of chloride of sodium into 1 equivalent each of corrosive sublimate and nitrate of soda.—[Sutton.]

The steps of the process are as follows: (1) Take 40 c.c. of urine; (2) mix with 20 c.c. of the baryta solution; (3) pour the thick mixture upon a small dry filter; and when sufficient clear liquid has passed through, (4) take 15 c.c. of it (= 10 c.c. of urine) and just neutralize it, or render it acid by a drop or two of nitric acid; (5) bring this urine fluid under the burette which contains the test solution of the nitrate of mercury, which is to be allowed to drop gradually, drop by drop, into the beaker containing the urine, which is to be constantly stirred with a glass rod; (6) as soon as the precipitate does not disappear by stirring, the operation is finished, but a permanent precipitate is produced (= urea and oxide of mercury); (7) the volume of the test solution used is to be read off the burette, and the amount of "*chloride of sodium*" calculated therefrom; (8) the chlorine may be estimated by the following formula: As 58.8 equivalents of chloride of sodium contain 35.5 equivalents of chlorine, the chlorine in the urine is obtained by the equation—

58.8: 35.5:: amount of chloride of sodium in urine : X (the chlorine it contains).

THE SULPHATES.

The sulphates of potassa and soda are found in large quantities in the urine, and are held in solution like the alkaline phosphates; they are derived in part from the food, and partly from the oxidation of the sulphur, which enters into the composition of the albuminous substances of the body, and the subsequent union with a base of the sulphuric acid which is formed.

In health their elimination is increased, during the administration of potassa, sulphur, sulphuric acid, or the sulphates; a strictly animal diet and violent exercise have the same effect.

In disease, their elimination seems to go hand in hand with urea; an excess is particularly noticeable in febricula, typhoid fever, typhus, variola, pyæmia, milk fever, acute pneumonia, and, according to Bence Jones,* in delirium tremens, in chorea, and in functional and organic affections of the nervous system. Dr. Parkes found in rheumatic fever the sulphuric acid in the urine greatly augmented, but the urea not correspondingly so.

In order to *precipitate* the sulphates, add a few drops of nitric acid to urine, and subsequently from fifteen to twenty drops of a saturated solution of chloride of barium, a white precipitate, insoluble in acids, is thrown down.

The mean of sulphuric acid excreted in twenty-four hours is 2.012 grammes, = 31.11 grains, with a range of 45 per cent.

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* Neubauer, Vogel, Sixth Edition; Weisbaden, p. 359.

above or below. The weight of the body is also to be taken into consideration.

Vogel gives an easy method of determining approximately whether it is increased or diminished. "After ascertaining the whole amount of urine in twenty-four hours—say it is 2000 c.c., and then each 100 c.c. would contain 0.10 grammes of sulphuric acid—100 c. c. are rendered acid, and as much of a test solution of chloride of barium is added as corresponds with 0.05 grains of the acid. [The test solution is made by dissolving 30.5 grammes of crystallized chloride of barium, powdered and air-dried, and diluting the solution up to one litre, 1 c.c. of it then equals 10 milligrammes of anhydrous sulphuric acid.] The mixture is now filtered, and if the filtered liquid is not made turbid by the chloride of barium, we may infer that the patient has secreted less than one gramme of sulphuric acid in the twenty-four hours. If the liquid, however, is rendered turbid by chloride of barium, then a further quantity of this agent, corresponding with 0.5 grammes of sulphuric acid, is added; and if the filtrate is still rendered turbid, it is evident that the quantity of sulphuric acid is greater than normal."

OXALATE OF LIME.

I have already pointed out the formation of crystals of oxalate of lime, in speaking of the changes during the decomposition of urine, in my first paper, and it has been stated that the appearance of these crystals in urine, after a day or two of its exposure to the atmosphere, was not at all a dangerous or morbid symptom.

This fermentation may be going on in the urinary passages, and give rise to a sediment of oxalate of lime, soon after urine is voided. Dr. Owen Rees states that the oxalic acid in these cases is derived from the decomposition of uric acid and the urates, and this could only take place after the urine had been secreted by the kidneys.

Schunk, in a recent valuable contribution to the chemistry of the subject, established the presence in the urine of oxaluric acid, which he thinks presents an easy and satisfactory solution of the formation of oxalate of lime. The conversion of oxaluric acid into oxalic acid may take place after the urine is voided, or commence in the bladder, or even in the more remote parts of the urinary apparatus, and thus lead to the formation of calculi of oxalate of lime. The oxaluric acid is derived from the oxidation of uric acid.

There are two conditions which may lead to the production and discharge of the "oxalate of lime"; both, if long continued, are inconsistent with the welfare and safety of the individual. The first is the production of oxalic acid in the system, induced by the excessive use of certain articles containing it, particularly when digestion is deranged; the use of frothy, sparkling beer or wine, sugar in excess, turnips, parsnips, carrots, cauliflower, asparagus, sorrel, rhubarb plant, may all cause a "temporary oxaluria." The prognosis in this condition is, of course, much more favorable than in the one next to be described; but if the cause is sufficiently long continued, the deposition of oxalate of lime in the urinary passages may be effected, and a serious condition thus induced.

The second condition is, where patients discharge for weeks and months habitually a large amount of crystals of oxalate of lime, and when oxalic acid is known to have its origin in the system, attributable, perhaps, as Golding Bird believes, to a secondary or destructive assimilation of tissue; or, according to others, to impediment in the respiratory functions.

This condition has been termed "*Oxaluria*" or "*oxalic diathesis*," chiefly affecting persons (according to Prout, Begbie, Frick and others, who have observed and described cases) of a sanguine or melancholy temperament; men belonging to the better classes, not used to making energetic efforts, indulging freely in the luxuries of the table, particularly in sweat-meats; suffering from indigestion, worn down by care and anxiety, their nervous systems shattered, generally those who have ruined their health and happiness either by excessive study, sexual indulgence, or masturbation. They constantly fear that a serious disease will overtake them, they become emaciated, their complexion assumes a dirty, dark hue, and they are either languid, irritable, dejected or desponding. Sometimes they are troubled with frequent seminal emissions and irritation of the bladder, with a loss of memory and a sensation of weight or dull pain across the loins, with a liability to boils and carbuncles, psoriasis and other skin diseases; in fact, these cases exhibit a train of symptoms which characterize low vitality and broken-down constitutions; their urine is of a high specific gravity, with an excess of urea, and ordinarily a deposit of mucus and crystals of oxalate of lime are seen.

The existence of "oxaluria" as a separate affection has been denied by many, among others, by Lehmann, Gallois, Smoler; but cases of the above described character are of such frequent occurrence that almost any physician has the opportunity to verify the truth of the symptoms, together with a large amount of oxalate of lime in the urine; he should never neglect in such cases to make a thorough search for the probable cause, and resort to efficacious remedies in order to prevent the formation of a most troublesome calculus.

The cases in which the formation of crystals of oxalate of lime is due to fermentive changes in the urinary passages, are not characterized by the constitutional symptoms above described.

The oxalates are often mixed with deposits of urates or uric acid; the earthy phosphates coëxist sometimes (Beneke says always) in large amount with the oxalates. In the cases in which oxalic acid has its origin in the blood, the passage of crystalline oxalate of lime gives frequently rise to irritation, and tube casts are the result. Dr. Da Costa mentions a case, which came under his observation, in which the patient suffering from a protracted and severe attack of "oxaluria" voided for weeks, along with the oxalates, casts of the character known as hyaline, exudative, or small waxy casts. Neither heat nor nitric acid detected albumen. Under treatment, the crystals disappeared from the urine, and with them the casts; the patient recovered perfectly, is reported as enjoying excellent health, and that he has not to this day had the slightest sign of degeneration of the kidneys.

In this connection I may mention that Dr. Walsh, of this city, in a lecture on gonorrhœa, stated that cases were most troublesome and obstinate to treatment when the patient indulged in the eating of asparagus, and that practical experience had induced him to interdict the use of this vegetable while treating a case of gonorrhœa. He stated that such was the experience of many physicians, who had taken the trouble to inquire into the diet of their patients, but could assign no particular cause. I conjectured at once that it must be the production of oxalic acid from the asparagus in the system, and that the passage of crystalline oxalates caused constant irritation and thus protracted the cure; subsequent experiments and investigations confirmed my conjecture. In the cases experimented upon, the eating of asparagus, rhubarb plant and other articles containing oxalic acid, invariably produced a greater or less amount of oxalates in the urine, and an aggravation in the local symptoms. The matter, though small in itself, is perhaps of sufficient importance to be remembered in the treatment of gonorrhœa.

The microscope is the readiest means of detecting the crystals of oxalate of lime; they appear in four forms: (1) In well defined octahedra of most varying size; and double quadrangular pyramids, united base to base. (2) As hour-glass contracted or dumb-bell-like bodies these forms are not frequent, however. (3) Compound octahedra may be seen. (4) Long or pointed octahedra, or prysmatic crystals, or flattened, bright discs, *very readily mistaken for blood discs,* may be observed.

The Therapeutical Indication will vary with the cause; if it can be traced to fermentive action in the urinary apparatus, the cause is to be rectified by appropriate treatment: Mineral acids, tonics, change of habits, regulation of diet, abstinence from all saccharine food, rhubarb plant, asparagus (and all the above-mentioned articles), are indicated in most cases of "oxularia."

Water containing lime should be avoided; and all constitutional symptoms treated upon general principles.

BILE IN URINE.

The presence of bile, or at least its coloring pigment in the urine, gives it a color varying from a saffron-yellow to a deep brown, and may lead to an unfounded suspicion of the presence of blood; the following tests will decide the question:

1. Pour on a white plate or sheet of writing paper a small quantity of urine, so as to form an exceedingly fine layer, carefully allow a drop or two of nitric acid to fall upon it, an immediate play of colors, commencing with green and blue, passing to violet or red, and often to a yellow or brown, will, if the coloring matter of bile is present and has not already been decomposed, appear around the spot where the acid falls. In the cases where the bile pigment has already passed through stages of transformation, the urine is generally of a brown or brownish-red color, and becomes red on the addition of nitric acid; sometimes, too, it is of a deep red, which nitric acid converts into a dark bluish red. Both Frerick's and Murchison have observed this condition; the former in undoubted cases of jaundice; the latter observer, in cases where there were no symptoms of jaundice, or where jaundice was due to a blood poison; but he frequently observed it in cases of functional derangement, or alteration in the structure of the liver.

The nitric acid test for bile pigment, as given above, may deceive the observer, inasmuch as an excess of indican may give rise to a very similar play of colors. The green color, however, is characteristic of bile pigment alone; to avoid any possible error on the subject, a portion of the urine may be subjected to the test for uroxanthin (indican). If the mixture becomes black and opaque, depositing a deep blue or purple precipitate on being diluted with water, the play of colors may be attributed to the excess of indican.

A very *delicate test* for the bile pigment, as proposed by Dr. Basham, is to add a small quantity of chloroform to a portion of urine, the mixture is to be shaken; the chloroform will dissolve out all bile-coloring matter and retain it in solution. If this solution be then decanted and evaporated carefully, the pigment, which is left, gives, on the addition of a drop of nitric acid, a beautiful ruby-red color, after displaying the characteristic colors. This test is equally available for detecting bile pigment in other fluids.

The following is a ready mode by which the biliary acids may be detected: To a couple of drachms of the suspected urine add a small fragment of loaf sugar, and afterwards pour slowly into the test tube about a drachm of strong sulphuric acid. This should be done so as not to mix the two fluids. If biliary acids be present, there will be observed at the line of contact of the acid and urine—after standing for a few minutes—a deep purple hue. This result may be taken as a sure indication that the jaundice is due to obstructed bile-ducts. On the other hand, the absence of this phenomenon, and the occurrence of merely a brown instead of a purple tint, although in the earliest stages of jaundice, equally indicative of suppression, is no indication of the cause of suppression, which must be gleaned from other circumstances.—(Harley, "On Jaundice," p. 61.)

Dr. Flex Hopper's method is as follows: (1) Decompose the icteric urine to be examined with an excess of milk of lime; (2) boil for about half an hour; (3) filter; (4) evaporate the filtered fluid nearly to dryness; (5) decompose with a great excess of concentrated hydrochloric acid, then keep the whole (before being again filtered) at the boiling point for half an hour; (6) to avoid spurting of the fluid, it is necessary to renew the volatilized hydrochloric acid from time to time; (7) leave the liquid to get completely cold, and then add six to eight times its volume of water; (8) filter the brown turbid solution thus obtained, wash out with water the residue on the filter until the same runs through quite colorless; (9) dissolve the brown resinous mass on the filter in 90 per cent. alcohol; (10) decolorize by boiling with animal charcoal, filter and evaporate to dryness in the water-bath; the residue is a yellow, resinous mass, which, if bile acids be present, must consist, for the most part, of pure "choloidic acid." In such a case it melts by warming, and emits the peculiar musk or soap odor; (11) lastly, dissolve in a very little caustic soda and some drops of warm water, add a very small piece of sugar, and allow three drops of concentrated sulphuric acid slowly to fall into it. At first the fluid becomes milky and troubled, and resinous flakes separate, which stick pertinaciously to the glass; but afterwards, by the addition of more sulphuric acid, these again dissolve and produce a beautiful purple, red, or dark-violet fluid.—[Abstract of Kühne's paper on the pathology of "Icterus," by Dr. George Scott, of Southampton, in "Beale's Archives," vol. 1, p. 343.]

Pettenkoffer's test for biliary acids is familiar to all, and consists in tincturing with a few drops of solution of sugar (one part to four of water) a small quantity of urine in a test tube or china dish, add to this mixture, drop by drop, sulphuric acid; at first a whitish precipitate is occasionally seen, but redissolves in a slight excess of sulphuric acid; the acid should be added until the mixture assumes a somewhat syrupy consistency and an opalescent look, owing to the development of minute bubbles of air. A red color then begins to show itself at the bottom of the test tube, and afterwards spreads through the mixture, until the whole fluid is of a clear, bright cherry-red. This color gradually changes to a lake, and finally to a deep, rich, opaque purple. If albumen is known to exist in the urine, it is to be coägulated and removed by filtration.

Various objections have been urged against this test. Robin and Verdeil say that its reäctions do not belong exclusively to the bile, and may, therefore, give rise to errors. Oleic acid, oil of turpentine, oil of caraway, are stated to have produced a similar play of color. The objections have no practical weight, inasmuch as the presence of bile with any of the named substances must be a very rare coïncidence indeed; and since we are always aided by the general symptoms.

The presence of bile in the urine is often apparent to the eye, and is apt to stain the patient's linen; it is of rare occurrence in health, though Scherer has noticed traces of the coloring matter during the hot season. The presence of this substance is only of importance in diagnosis, when the general symptoms of jaundice are marked. Its presence indicates that the kidneys are called upon to perform the work of a deranged liver, or to rid the blood of an excrementitious substance, which, owing to an impediment in the biliary passages, have been reäbsorbed.

The biliary acids have been found in the urine in jaundice and acute atrophy of the liver. Their presence indicates accumulation in the blood, which may either be due to their improper destruction or transformation therein, or to an hyperproduction in the liver. "The causes which prevent their transformation in the blood are, as yet, obscure; but their presence exercises a powerfully depressing influence over the nervous system, particularly the cardiac nerves."—(Gerhardt.)

That the presence of the biliary acids in the urine is in great measure due to non-destruction in the blood, is seen from the fact, that in jaundice we do not always find the biliary acids with the bile pigments, or if so, in an inadequate amount, simply because the acids are gotten rid of, as Vogel believes, in the usual way in the blood. Therapeutical Indications: *Treat the cause.*

SUGAR IN URINE.

Sugar is occasionally found in the urine of persons in health, and can either be accounted for as a product of decomposition of the indican, or by an undue introduction of saccharine or farinaceous articles into the system. It has also been detected in the urine during or after the administration of ether, chloroform, or hydrate of chloral; it would seem that in these cases it was owing to a loss of power of the lungs (during anæsthesia) to destroy sugar, and its consequent accumulation in the blood. According to the observations of Bordier, sugar is frequently found during convalescence from acute affections, as pneumonia, phthisis, rubeola, erysipelas, and other inflammatory fevers; but unless the quantity is small and transient, or a proper account for its presence can be given, it constitutes diabetes mellitus. Before entering into the causes of diabetes, it must be stated that sugar has frequently been found in considerable quantity in the urine after injuries of the brain, disturbances of the nervous system, particularly the medulla oblongata. The prognosis in the first instance, as far as the glycosuria is concerned, is favorable.

The causes of diabetes mellitus are generally believed to be due—

1st. To an undue introduction of sugar into the blood, whether from hyper-production of sugar in the liver, in the alimentary canal, or in both.

2d. To a deficient destruction of the sugar, the quantity not being increased.

3d. To an increased introduction and deficient destruction combined.—[Flint.]

The urine in this affection is voided in abnormal quantities, the color is light, its odor is a peculiar sweetish one, and its specific gravity varies from 1030 to 1074.

The amount of sugar excreted differs in different cases. Dr. Austin Flint, Jr., mentions a case in which the quantity of urine passed in twenty-four hours was 89 ounces, specific gravity 1037. The amount of sugar in one ounce was 36.363 grs.; in the whole quantity, 6 ounces, 356.16 grs.

Several tests have been proposed to detect the presence of sugar.

The following is Trommer's test, familiar to all, and if used with the necessary precautions, is sufficiently delicate and reliable. It depends upon the fact that the saccharine substances have the power of reducing the persalts of copper when heated with them in an alkaline solution: "Add a very small quantity of sulphate of copper in solution to the suspected urine in a test tube, render the mixture alkaline by the addition of caustic potassa; the whole solution then takes a deep blue color. On boiling the mixture, if sugar be present, the insoluble suboxide of copper is thrown down as an opaque, red, yellow, or orange-colored deposit; otherwise, no change of color takes place."

I have pointed out that the presence of some organic ingredient will interfere with the above test. To insure reliability, the urine is first to be treated with an excess of animal charcoal and filtered. If albumen is present, it should be coägulated and treated in a similar manner. Chloroform, creatine, and uric acid are stated to have the power of reducing the salts of copper; and Beale has shown that the presence of the ammoniacal salts will prevent the precipitation of the sub-oxide of copper in specimens of urine containing but little sugar.

Moore's test is the simplest, but not the most reliable. It consists in boiling the suspected urine with an equal quantity of liquor potassa. If the mixture contains sugar, it becomes brown, which grows deeper the longer the boiling is continued. This test is not applicable when the urine contains traces only of sugar.

Fermentation Test.—A common test tube is to be filled with the suspected urine, a little ordinary yeast is to be added, and then inverted and placed in a saucer containing urine, care being taken to prevent the entrance of air; kept at a temperature of 70° Fahr., fermentation ensues, and the gas formed rises in the tube and displaces the urine. The gas is shown to be carbonic acid, from its failure to support combustion. According to Dr. Christison, one cubic inch of carbonic acid indicates one grain of sugar.

Another fermentation test, known as "the differential density method," has been proposed by Dr. Roberts, and recommended by Professor Doremus. It is based upon the fact that the sugar, if any is present, undergoes, as in the preceding test, alcoholic fermentation; and that, by this process the density of the urine is diminished; each degree of density lost represents one grain of sugar to every fluid ounce of the diabetic urine.

The details of the process are as follows: Put four ounces of urine, mixed with a lump of German yeast about the size of a chestnut (or if this is not at hand, use ordinary brewer's yeast), into a twelve-ounce bottle, close it with a nicked cork, for the purpose of allowing carbonic acid to escape, and set it near a warm place for fermentation. A four-ounce vial, containing a specimen of the same urine without the yeast, is to be closely corked and placed alongside the other bottle, for the purpose of avoiding any error, which might occur, if the specific gravity of the urine both before and after fermentation was obtained at different temperatures. After twenty-four hours the fermentation will have ceased. Both bottles should be taken to a cool place, so that the urine may acquire the temperature of the surrounding air. The specific gravity of the two specimens of urine is now taken, and their difference in density, as determined by the urinometer, indicates the number of grains contained in each fluid ounce of the saccharine urine.

"Fehling's test" is very reliable for the detection of sugar. The following test is similar to Fehling's, and is based on the fact, that although a mixture of pure sulphate of copper, tartrate of potash, and caustic soda, mixed in proper proportions, may be boiled without undergoing change; yet, if only a trace of sugar be added, a very slight warming is enough to precipitate a portion of the copper as a protoxide [$Cu_2 O$.] It is found that one atom of pure sugar, equal 180, is capable of reducing exactly ten atoms, equal 307 of oxide of copper [$Cu O$] to the state of protoxide. Therefore, if the quantity of copper reduced by a given solution of sugar is known, it is easy to find the quantity of sugar present (Sutton). A standard solution of pure sulphate of copper with tartrate of potash and caustic soda is required. It is to be prepared as follows: (1) 346.4 grains of pure sulphate of copper, previously powdered and pressed between blotting paper, are weighed and dissolved in 200 c.c. of distilled water; (2) In another vessel 1,730 grains of pure crystallized tartrate of soda and potash (Rochelle salt) are dissolved in 480 c.c. of solution of pure caustic soda (specific gravity 1.14); (3) The two solutions are then to be mixed, and the deep, clear blue solution diluted with distilled water till the whole measures 1,000 c.c. One c.c. of the solution so prepared represents 0.05 grains of grape or diabetic sugar. It must be preserved for use in a dark place, and in well-stoppered bottles kept full. It should bear heating when diluted with about four or five times its quantity of distilled water, without any precipitate taking place; and should always be submitted to this test before being used. If any precipitate does occur, it probably arises from the alkali having absorbed carbonic acid; and in this case the addition of a little fresh caustic soda solution remedies the evil.—[Sutton.]

The following are the details of the process for analysis: (1) 10 c.c. of clear urine are diluted by means of a measuring flask to 200 c.c. with water, and a large burette filled with the fluid; (2) 10 c.c. of the copper solution (equal to half a grain of sugar) are then measured into a flask, or white porcelain capsule, and 40 c.c. of distilled water added; (3) The vessel is to be arranged over a spirit-lamp under the burette, and brought to boiling; (4) The diluted urine is then delivered in, cautiously, from the burette until the last traces of blue color are removed from the copper solution, and the precipitate is of a distinct red color; (5) It must be remembered that the urine has been diluted twenty times, so that the quantity used, divided by twenty, will represent the amount of the original urine used, and the estimate is to be made accordingly.

Other tests have been proposed, but any of the above will answer all practical purposes. The presence of the "torulæ cervisiæ" seen under the microscope confirms the presence of sugar in the urine. The torulæ form two or three hours after emission a gelatinous mass, composed of sporules, which subsequently develop into beaded threads, and in a few days ærial fructification appears.

For therapeutical indications, I must refer the reader to treatises on "Diabetes Mellitus." If the cause and source of the mischief was better understood, the therapeutical indications could be more satisfactorily determined.

Inosite.—This is a substance which belongs to the group of sugars, and has recently been discovered in morbid urine, accompanied either by grape sugar or albumen. Its origin and significance are as yet obscure. Vogel deems it not unlikely that it is derived from the glykogen in the liver, since irritation of the fourth ventricle in animals produced "inosuria" instead of glycosuria." Cloetta found inosite in the muscles, lungs, kidneys, spleen and liver, and detected it with ease in the urine in Bright's disease. Vohl found it in diabetic urine, in which it gradually filled the place of sugar. Gallois has described cases of inosuria (De l'Inosurie, Paris, 1864). It is a symptom rather than a disease. The characteristic reäction of inosite is exhibited when a solution of the substance is evaporated nearly to dryness. The residue is to be moistened with ammonia and a little calcium chloride solution, after which it is again evaporated, when a rosy red substance will be left. Inosite has not the power of reducing the copper salt, when Trommer's test is applied.

Extractive Matters are found in urine during certain morbid conditions of the system, and are derived from the blood. The tincture of galls, as recommended by Dr. Owen Rees, precipitates them immediately, while healthy urine is not affected; the precipitate, however, is not to be confounded with that of the earthy or potassa salts, which are thrown down in any kind of urine, after five or ten minutes, by the alcohol contained in the tincture. If albumen is present, it is to be coägulated by boiling and separated by filtration before applying the test.

The presence of the blood extractives in the urine indicates hyperæmia or inflammation in some part of the urinary passages, and the consequent transudation of blood material. Dr. Owen Rees, in a recent contribution to medical literature, has pointed out that in Bright's disease the extractives can be found in the urine before the presence of albumen is detected, and after albumen has disappeared. Dr. Rees deserves great credit for these observations, as they are of great importance in diagnosis and prognosis, since we can infer on the one hand an approach of albuminuria, and on the other hand that the patient is not yet out of danger. Dr. DaCosta, from whose work on diagnosis this information is obtained, states that the presence of the extractives will enable us to diagnosticate nephritic irritation from renal calculus, before albumen, blood or pus have appeared, and deems it highly probable that the extractives will be found preceding albumen in urine in most cases.

ALBUMEN IN URINE.

Albumen is occasionally detected in the urine of persons in health, but unless the quantity is small and can be accounted for by an exclusive albuminous diet, is a condition which requires a thorough inquiry on the part of the physician into the probable cause.

The causes for albumen in urine may be arranged under the following heads:

(1) *Albuminuria*, depending upon a congested state of the kidneys, which is so generally the case at the onset of all acute inflammations of important viscera in the body. Thus it has been observed in pneumonia, pleurisy, pericarditis, hepatitis, peritonitis, metritis, and phrenitis; also in different other affections, as typhoid and typhus, in all the eruptive fevers, in diphtheria, rheumatism, gout, after surgical operations, etc.

(2) *Albuminuria*, depending upon congestion of the kidneys, of spontaneous origin, and the actual destruction of the secreing cells [in all inflammatory affections of the kidneys, Bright's disease, also in encephaloid and other malignant diseases of the kidneys.]

(3) *Albuminuria*, depending upon impeded circulation, as in valvular disease of the heart and portal congestion, also upon passive congestion produced by the pressure of an abdominal tumor, or impregnated uterus upon the renal veins.

(4) *Albumen* in urine may also be the result of an admixture of blood or pus; and finally it has been observed during anæsthesia, during the internal and external use of carbolic acid and turpentine, after the application of a fly-blister, and after the inhalation of carbonous oxide (new).

It will be seen that albumen is found during many affections of the system; the amount and continuançe of it, together with the history of the case, must guide us in our opinions; yet we should never omit to direct our attention to the kidneys, and with the aid of the microscope we may be enabled to diagnosticate the different affections of the urinary organs.

Tests for Albumen.—(1) Heat, which coägulates the albumen. (2) Nitric or carbolic acid, which cause a white precipitate. (3) Crrrosive sublimate, which also causes a precipitate. The first and second test, used with the necessary precautions, are the most convenient. The application of heat may render the fluid thick by throwing down the phosphates instead of the suspected albumen; the question can easily be decided by adding a few drops of nitric acid; the turbidity, if owing to the phosphates, will at once disappear.

In alkaline urine, particularly if the quantity of albumen is small, heat will not produce coägulation. The urine should be rendered slightly acid by acetic acid or nitric acid, the former is preferable, since it does not precipitate albumen before heat is applied. A highly acid urine behaves like an alkaline urine.

The nitric acid test usually employed may deceive an inexperienced observer, for it may give rise to a precipitate which is not albumen; it may deposit the urates, or even uric acid; upon boiling urine, however, the mixture quickly clears if the opacity is not caused by coägulated albumen. There can be seldom any doubt when albumen is present in considerable quantity; it is only when but traces are found that the test requires verification. To avoid all errors, the urine should be boiled, after having ascertained its reäction, in a clean test tube over a spirit-lamp, and then the acid added. A second specimen should be tested by Heller's mode, which consists in holding a test-tube, about one-third full of urine, in an inclined position in the left hand; twenty drops of nitric acid should then be allowed to run gradually down the side of the tube, the acid collects at the bottom, and if albumen is present, an accurately defined layer will be seen collected above the acid.

The urates are, in the last test, also affected, but the layer of albumen is so well defined above the acid that an error is almost impossible; above the layer of albumen in the test-tube a clear layer of urine is observed, and above this, a layer of turbid urine, produced by the urates.

Care is to be taken not to add too much nitric acid to suspected albuminous urine, as the albumen may be re-dissolved; while, on the other hand, a drop or so only may retard, instead of favoring, coägulation. Dr. Andrew Clarke (in the London Hospital Reports, vol. i., p. 226) called attention to the fact, that both heat and nitric acid may not, for the time being, detect the presence of albumen; yet, after a few hours, a flocculent precipitate may form and fall to the bottom of the tube. A remarkable substance, allied to albumen, has been detected in the urine by Dr. B. Jones, in a case of rickets. It differed from albumen in not being precipitated by heat or nitric acid. But on boiling the urine and allowing it to cool, a precipitate fell, which re-dissolved on the application of heat. The substance, which was precipitated by alcohol, was the hydrated deut-oxide of albumen. Scherer has also met a modified form of albumen, precipitable only by alcohol.

The following is the carbolic acid test solution, as recommended by Mélne: "Take of crystallized carbolic acid 1 part, by weight; commercial acetic acid, one part; alcohol, 90 per cent., two parts. This solution undergoes no change on keeping. It is used as follows: To 100 grammes of urine add 2 c.c. of commercial nitric acid, and thoroughly mix. Upon the addition of 10 c.c. of the carbolic acid solution, the albumen is precipitated in white flakes. In testing highly albuminous urine or albuminous solutions charged with salts, the addition of nitric acid is scarcely necessary."—(DaCosta.)

To determine the exact quantity of albumen present in the urine, a measured quantity of urine is to be acidulated with acetic acid, placed in a Florence flask, and to be heated in a water-bath until it boils. The coägulum which is formed should be collected on a filter, dried and weighed. The easiest method, and one much practiced, is to acidulate a test tube full of urine with acetic acid; the mixture is subsequently boiled and allowed to settle. The proportion of the precipitate to the entire bulk is then expressed as one-half, one-fourth, or one-fifth, as the case may be.

ART. II.—REPORT OF TWO CASES OF PYÆMIA. By AARON ANSELL, M. D., San Antonio, Texas.

Much attention in writing and discussion has been given lately to the subject of pyæmia, especially as regards its causation; and while some have regarded it as distinctly a hospital disease, others have claimed for it an equal position in private practice. And again, while some have declared it a disease fatal in ninety per cent. of their cases, others have proven it a most controllable affection, readily yielding to treatment; while others, still, claim it is preventable, and by care and attention may, in time, become "a thing of the past." Be this as it may, it is not my province, on this occasion, to enter the list as a disputant on the merits or demerits of the various means applied to its causation or to its factor. I have selected these two cases from among those recorded in my note-book, as being typical of the disease, and offer them as fitting ones for clinical record. I select these two for various reasons.

No. 1, it will be seen, is a hospital case; the patient a soldier, worn down with fatigue, ill supplied with food of a character likely to improve the condition of his system; a man inattentive to ordinary hygienic rules; in fact, "literally filthy." He became an inmate in one of my wards, in which there were at the time fifty-nine others sick and wounded. The ward was a fine, large, clean, well ventilated room, isolated from the other wards. It was appurtenanced with a special care to prevent mortality, and its arrangements and management were faultless (if such can be). His was the only case of pyæmia in that ward for months prior to and months subsequent to his demise.

No. 2 was a case in private practice, and though not a broken-down soldier, his health was impaired by previous disease. Being poor, I received him as an inmate of my own house, gave him a large, well ventilated, well lighted room. He, like the other case, was properly fed, clothed, cleansed, and stimulated; with this difference, that while in No. 1, I merely ordered the stimulants to be given; in No. 2, either myself or my wife (a true and faithful assistant) administered it ourselves. In this case the medullary structure of the bone was not involved as in the other. And now to the cases:

No. 1. Charles Crealman, aged twenty-one, private in 118th Pennsylvania volunteers, was wounded September 30, 1864, and admitted to Ward 6 Lincoln U. S. General Hospital October 7, 1864. The diagnosis, on his admission, was "gun-shot fracture of right humerus." He died October 26, 1864; cause of death, pyæmia.

History.—On the patient's admission, a careful examination was made of the wound, and extent of injury ascertained, by the introduction of the finger. This being done, his arm was adjusted to an angular splint, and cold water dressings applied. He was ordered generous diet, with tonic stimulants three times daily.

The case progressed favorably; wound discharging freely laudable pus until the 17th of October, eighteen days since the reception of the injury, when the wound closed and was disposed to cease discharging. Warm applications were applied, but to no purpose. On the evening of this day a severe chill supervened, with increased heat of skin, followed by profuse sour-sweat; bowels constipated; complained of pains in various parts of body. Administered a cathartic and Dover's powder at bed-time, and the following to be taken every two hours: Quinine, five grains; Carb. Ammonia, three grains; Chlorate Potash, fifteen grains, with free use of brandy and eggs. This treatment I continued till the 19th, when the patient's skin became thoroughly suffused with bile; pains increased, especially over region of liver. I applied blisters on either side, and counter-irritants to other parts. I then had recourse to mercurials. The wound, ad interim, became hermetically sealed, and bowels persistently constipated; but when at last an action was obtained therefrom, the stools were clay-colored. On the 23d, he had several severe chills, and from this time began to sink. He was freely stimulated, but the pulse refused all response. On the 24th, stupor supervened, in which state he continued until the 26th, when death closed the case.

The autopsy, held ten hours after death, revealed each pleural cavity filled with muco-serous fluid; the lower lobe of the right lung firmly adherent to the chest-wall, and the upper lobe of left lung also slightly so; the adhesions were recent. The pleura was closely adherent to the lungs; the parenchymatous structure of each lung highly congested, but a small portion of the upper lobe of right lung appeared healthy; the organs throughout contained bile pigment. The middle and lower lobe of right lung was hepatized, and contained innumerable abscesses; the left lung also contained purulent deposits throughout. Trachea and bronchial tubes highly congested, and contained a mucus deposit throughout their entire length; pericardium healthy. The heart was normal in size; the left ventricle contained a small black clot; the right ventricle had several abscesses on the columnæ carneæ and chordæ tendinæ; valves healthy, but the same icterode hue which pervaded the body also existed in the heart. The covering of the abdominal cavity was congested, and also of an icterode hue; stomach distended with injesta; left kidney enlarged; both organs studded with abscesses, and their cortical substance congested; the pancreas softened and broken down; the spleen soft, and of a dark-brown hue; the liver enormously enlarged, and contained a number of abscesses; one on the right lobe, on being laid open, emitted 3 ozs. of pus; the stomach, except at the cardiac orifice, was healthy, at that spot it was highly congested;

the small intestines were healthy, except in one or two spots where some congestion was visible; the cæcum was sphacelous; colon and rectum healthy; the brain healthy. The organs weighed as follows: Brain, 49 ozs.; right lung, 25½ ozs.; left lung, 19 ozs.; heart, 10 ozs.; right kidney, 7½ ozs.; left kidney, 9 ozs.; spleen, 9 ozs.; liver, 124 ozs. Examination of the fractured arm revealed BLOOD VESSELS HEALTHY; bone much comminuted, and two small pieces of bullet embedded within the bone, and pieces of osseous substance driven up into the cancellous structure about 1½ inches; the bone was necrosed near the condyles.

Case No. 2 occurred in private practice in Saltillo, Mexico, in the person of a Mexican boy, Epiphanio Cortez, aged seventeen, of a strumo-syphilitic diathesis. Consulted me on the 23d of January, 1869, for anchylosis (partial) of the right knee-joint. His previous history displayed that three years previously he had a severe attack of rheumatism in the right knee-joint (so his Mexican medical attendant called it; I denominated it syphilitic synovitis), which confined him to his bed many months. There was excessive suppuration and discharge of dead bone. The lad himself had never contracted any specific disease, but his family history will not bear scrutiny.

At this date the limb presents the following appearance: The leg is flexed on the thigh, and there is very little motion in the joint; there are two very large indented cicatrices on the inner aspect of the joint, and several small ones in other parts; another exists a little below and exterior to the tubercle of the tibia, and yet another on the outer aspect of the leg above the external maleolus.

I consulted with Dr. A. E. Carothers, who was of opinion that the case offered favorable signs for a subcutaneous operation, with a view of restoring the motions of the joint, or of converting the anchylosis from a flexed to a semi-extended one, remarking, that should our efforts fail, then the question of amputation (my view) would not be affected accordingly.

January 30, 1869.—The patient was anæsthetized with chloroform by Mr. John Carothers, who, with his brother, the Doctor, kindly aided me, and I divided successively the tendons of the biceps flexor cruris, the semi-membranosus and semitendinosus, and using force gradually applied to the femur and knee-joint, adjusted the limb to a broad splint, applied posteriorly, to which it was bandaged. He reäcted well, and then took one-quarter grain acet. morphia. Next day he complained of severe pain from the knee up to the groin, but none below the knee. I suspected, therefore, that I had divided the peroneal nerve (but subsequent examination proved my supposition false). The muscles of the thigh were tense; his pulse full and hard, 120. He was ordered to continue the morphia every three hours till sleep was produced, and to have one-half ounce of whiskey.

Next day, pain was relieved; pulse, however, the same; tongue coated; bowels confined. Ordered to suspend morphia, continue stimulants.

February 2.—The pain almost entirely gone, and the muscles relaxed, but at 3 P. M. I was sent for in a hurry. I found him with the pain returned and much aggravated. His shrieks were terrific. He could not bear the slightest touch; his pulse 140; countenance anxious; speech tremulous. I relieved the limb of all pressure by dividing the bandage, when, on uncovering the limb, it was found cold and swollen from foot to knee-joint, and from the toes to ankle-joint somewhat discolored. Ordered hot stimulating applications, and to take every two hours—

℞—Ammonia Carb., grs. v.;
Cum. Sp. Vini Gallic, ℥ss.

February 3.—Leg and foot gangrenous as high up as the upper third. Amputation decided on. At 4 P. M., being again generously assisted by the same gentlemen, I amputated at the joint by "Teal's method, rectangular flaps," including the patella within the anterior long flap. One ligature was applied, and the flaps united with seven iron-wire sutures. The stump was dressed with cold stimulating lotion, and he was ordered to take—

℞—Morph. Sulph., grs. ss.;
Cum. Sp. Frument, ℥ss.;

to be repeated in three hours, if necessary.

February 4.—Patient reäcted well, and is easy.

February 5.—Stump has a diffused blush, and is œdematous; relieved it of all the sutures and dressed it, internally, by syringing it out with carbolized water (1 to 60), and externally, with carbolized oil (1 to 40). Generous diet, half ounce of whiskey three times a day.

February 6.—Has had during the night *two severe chills*, followed by profuse sweats; pulse quick and small; anorexia; tongue dry, with a heavy brown coat. To take, every three hours: ℞—Quin. Sulph., grs. iij.; Pot. Chlo., grs. x.; half oz. whiskey every sixth hour; beef-essence and egg punch alternated every two hours. 4 P. M, the stump has a general appearance of sphacelus, and looks unsatisfactory. Continue dressings.

February 7.—Has had another and more severe chill, followed by sweat; complains of general pain; pulse small and quick, 160; voice inaudible; countenance sunken; conjunctiva icterode; bowels confined; stump has the same appearance, though discharging benign pus. Pyæmia is evidently established. Ordered continuation of quinine, increase whiskey to one ounce every two or three hours, beef-essence and milk punch.

February 10.—The patient's condition has been unchanged until to-day, except, perhaps, that he had grown gradually worse. On consultation, two days ago, with several medical gentlemen, the case was considered beyond the pale of recovery, in which I felt I could not dissent, but by persisting with good food and free stimulation, this latter carried to such a point that the patient was literally "dead drunk." I have the satisfaction this morning of seeing my patient brighter, with a pulse 98, full, and strong; tongue clean; bowels regular; discharges healthy;

though no appetite. He takes every twenty-four hours, by force, over half a pint of beef or chicken essence, half a dozen raw eggs in milk punch, and about a pint of whiskey. The stump, although sloughing, with bone exposed and the point for an inch necrosed, still discharges benign pus. I continued the dressing and treatment.

February 15.—The patient has continued to improve rapidly. He is now sitting up enjoying his "cigarrito." His appetite is most voracious, and he is lively and bright. The stump is granulating finely and healthily; the integuments have been drawn down so as to cover the bone, and the edges supported by broad adhesive strips and a bandage. Suspended all medication. Continue generous diet, with wine two or three times a day.

February 27.—Entirely recovered; discharged. The stump is sound and free, well covered and cushioned.

Examination of Limb after Amputation.—We discovered that the force used to straighten the limb had ruptured the sub-periosteal vessels, and a diffused aneurism was the consequence, which had torn up the periosteum for three-quarters of an inch from off the tibia. The aneurism was as large as a pigeon's egg. The tumor extended into the popliteal space and paralyzed the peroneal nerve.

ART. III.—DRY BURNS, AND HOW TO TREAT THEM. By A. D. BINKERD, M. D., Petrolia City, Pa.

In these oil regions, where thousands of barrels of hydrocarbons and tens of thousands of cubic feet of highly inflammable gas are forced from the bowels of the earth every day, terrible explosions and frightful conflagrations, often inflicting serious burns, alike upon visitors and operatives, are phenomena of frequent occurrence.

Nowhere has the physician a better opportunity to study the therapeutic value of the remedies applied to these painful and often dangerous wounds, and nowhere can he better demonstrate to suffering humanity the practical value of the healing art, when judiciously applied.

Five years' experience in the midst of such scenes has enabled the writer to test the relative value of a long list of remedies that may be applied to a recently burned surface.

I here propose to give, in as concise form as the nature of the subject will allow, the method of treatment which I generally found productive of the most satisfactory results.

When called to a patient who has been either slightly or severely burned, the indications manifestly are—first, to relieve the sufferer's agonizing tortures, which are often so severe that he will pay no attention to any remark addressed to him, but continue to walk rapidly back and forth, uttering lamentations, blowing his hands, or flinging them frantically through the air. Second, to assist nature in rallying the patient from the severe nerve-shock he has just sustained. And third, to put and keep him in the best hygienic condition to favor the healing of the wounds. Luckily, there is a long list of useful remedies, some of which are always at hand, such as flour, corn-meal, dry-starch, fats, oils, eggs beaten up, or any oleaginous or plastic substances, as dough, yeast, or glycerin, cotton fibre, unsalted butter or cream—anything not acrid that will make an impervious coating sufficient to protect the tender nerves of the excoriated and congested surface from the air.

I have heard alcohol highly spoken of, though I have never tried it. I shall not hesitate to try it should an opportunity offer. I unhesitatingly give the preference to a mixture of carbolic acid and glycerin, in the proportion of from five to ten drops of the former thoroughly incorporated with an ounce of the latter, spread on with a camel's hair or other light brush, then a layer of raw cotton, over which a roller bandage is neatly adjusted to the parts, and the dressing is finished.

The exhibition of from a fourth to half a grain of the sulphate or acetate of morphia as early as practicable, has, in my hands, been productive of decidedly beneficial results.

On the night of April 1st, Mr. W., an engineer, turned the valves of a pipe conducting the gas from the well to the fire-pan, with the intention to light it. Just then there occurred a tremendous explosion, prostrating him to the floor, enveloped in a sheet of flame. Though it was all over in an instant, so great was the force of the explosion, that Mr. W. sustained a frightful burn. The patient ran straight for my office, which was, fortunately, not far distant. So great was his suffering, that he could neither sit nor stand still, but continued to walk about the floor blowing and slinging his hands; and I was obliged to apply my dressing as best I could. I used the carbolic acid and glycerin, raw cotton and a roller bandage. Soon he became quiet, and sat down, remarking that he felt easier. By the time I had finished the dressing the pain had ceased, and he left my office with the remark, that he felt fifteen dollars better.

A similar result has followed the use of the above remedy so often that I am satisfied with its efficacy in superficial as well as deep dry burns.

I have some experience with the remedy in question, as applied to scalds, and I find it equally valuable, whether the wound be superficial or deep.

No physician who has had any experience in dressing burns would continue the same application, as applied to a recent burn, more than forty-eight hours, or perhaps at the most three days. Remember, the character of a burn changes rapidly. And our mixture of acid and glycerin is equally applicable to a simple hyperæmia or an excoriated surface. In a few hours the excoriated surface begins to pour out lymph in great abundance, so much so as to partially exhaust the patient in a few days. This tendency to *run* constitutes one of the great difficulties in the management of burns.

When the wound begins to run freely I change the dressing to a soothing astringent.

CASE II.—On Monday morning, April 18, 1870, the workmen on the Armstrong well, near Queenstown, Pa., struck a vein of gas and oil at the depth of 1263 feet, from which issued a stream of oil that rushed with great violence far up into the air. While they stood gazing upon this welcome yet unexpected phenomenon, the gas accumulated around them, spreading farther and farther, till it reached the unobserved smouldering fire of the forge, then there was a flash, the earth trembled, the roof of the derrick and the engine-house had bodily disappeared, vanishing into the air; and, instead, there stood a magnificent column of fire and smoke, the latter rising black as darkness thousands of feet into the still air, disappearing into the clouds. Those curling, leaping billows of fire are grand beyond description. I never witnessed a more furiously grand spectacle.

Three workmen and one visitor were in the building at the time of the explosion. They were all hurled to the floor with great violence, and how they escaped instant death, borders on the miraculous. They were all severely burned, however. Their faces, necks, hands and arms, wherever their skin was not protected by natural or artificial covering, was either crisped, torn to shreds, or carried away by the force of the explosion. All this occurred as quickly as if by a flash of lightning. Surgical aid was summoned as speedily as possible; the parts were thickly coated with white lead and oil; this coat, with the skin, soon sloughed off, except where the burn was less severe, or where the skin was already wanting. A mixture of lime water and oil was then applied, but the pain occasioned by this dressing was too severe to be endured, and on removing it, the blood ran down and dropped from the elbows.

On the seventh day from the accident, two of these patients fell into my hands for treatment. I found them tumefied almost beyond recognition, feverish, restless, and tongue thickly coated. They were full of agonies in mind and body, and had slept scarcely a wink for several nights, so great was their suffering. I removed the bandages, and found a raw, highly congested and suppurating surface, that a sheet of foolscap would about cover. With a soft brush and a basin of tepid water I gently cleansed the parts by washing away a large quantity of lymph rapidly undergoing decomposition and emitting an offensive smell; this done, I dusted half a grain of sulphate of morphia over the raw surface, and cut into sections, to fit closely, bits of patent lint, nicely spread with an ointment improvised according to the following recipe, varied to suit each case or the season:

℞—Yellow Wax (melted and strained), about f. ℥iij.;
Linseed Oil (raw), f. Oiss.;
Tannic Acid, ʒss.;
Subcarbonate Bismuth, ʒj.;
Opii. Pulv. (very fine), grs. xx.;
Sol. Carbolic Acid, grs. xxx. M.

The patient experienced great relief in a few minutes, and slept soundly when the dressing was finished. The wound was thoroughly cleansed night and morning, and new dressing applied. When too painful, the dressing was removed at midnight. Cleansing the wound of its lymph invariably gave great relief to the patient. In removing the bandage the second day the matter ran in a stream from the elbows.

On the third day the character of the wound was entirely changed; the lymph was thicker, less abundant, and spread evenly over the surface. The odor was also less offensive; the pulse softer and slower. The patient was comfortable and hopeful. Healthy granulations were springing up along the margins, and even in the middle of the wound. In due time a saline cathartic was administered, followed by tonics and a generous diet; and, as might be expected, a speedy and complete recovery was the result.

On the ninth day of the above treatment I dismissed the patient, with no farther marks than a slight discoloration of the skin showing the extent of the burns.

I must here dwell a little upon the preparation of this *wax* and *oil*. Like everything else, it is worth making right.

I take a common fruit can, not oxydized, cleanse it thoroughly, melt the wax in it, then add the oil little by little, keeping all very liquid by heat, stirring it vigorously all the while. After all the oil has been poured in, continue stirring for five or ten minutes. Then set it off to cool, agitating it as before. When it begins to chill, add the tannin; still later, put in the bismuth, opium and carbolic acid. The quantity of oil must depend upon the season; more in winter—less in summer. The consistency should be that of butter at 45° or 50°. When thoroughly mixed, this makes an admirable dressing, at once free from all offensive odors. It does not become rancid with age; it is not sticky and unsightly (vexing both patient and nurse), as is the carbonate of lead; it does not dry or adhere to the parts. Above all, it possesses the invaluable property of correcting offensive odors. This in itself commends its use. Perhaps no smell is more sickening and offensive than that arising from a burn when the weather is warm. The traditional lime water and linseed oil only augment the villainous smell, besides staining everything with which it comes in contact an unsightly yellow. The patent lint is of English make, costing one dollar per pound. I regard it by far the best form of material I ever applied to a burn; there is nothing curative in it, but its adaptability renders it valuable; it may be moulded to any part of the body with the greatest ease. (I have not tried oakum.) I insist on cutting the lint into small bits, as it may then be so applied as to fit any irregularity of surface. The advantage of this will be apparent on removing the soiled dressing. The lint should not be used a second time, it should be burned as soon as removed. Should a wound become indolent, persist in running, and refuse to take on healthy action, it may be regarded as a hint that the patient's general health wants looking after as well as the wound. Cincho-quinine and iron internally, and a little solid lunar-caustic to the most unhealthy part have rarely failed to produce the desired result.

In some persons the management of a burn requires more attention, with less gratifying results than in others, though the wound be equally severe.

Morphia and tannin sprinkled upon the raw surface after cleansing, are always grateful to the patient, lessening both the pain and the quantity of purulent secretion. The patient should not be constantly nauseated by the smell of offensive dressings, such as carron oil, lime water, linseed oil, etc., which in warm weather is entirely inexcusable.

ECLECTIC DEPARTMENT.

"Carpere et colligere."

ART. I.—ON INTRA-UTERINE FIBROIDS.* By J. MARION SIMS, M. D., Surgeon to the Woman's Hospital of the State of New York, etc.

Mr. President and Gentlemen:

The names of Atlee and Peaslee will always be associated as pioneers in establishing ovariotomy in this country as a legitimate operation. But the name of Atlee stands without a rival in connection with uterine fibroids. His operations were so heroic that no man has yet dared to imitate him. A generation has passed since he gave to the world his valuable essay† on surgical treatment of fibrous tumors of the uterus; but it is only within the last five or six years that the Profession have come to appreciate the great truths which he labored to establish. Meadows, of London, and Thomas, of New York, have each achieved splendid results in this direction, and made valuable contributions to our literature. A few isolated cases of fibroid enucleation have been published by others, and this is about all that we can boast of, since Atlee first led the way for us.

Uterine fibroids are classified according to their relations with the tissues of the uterus. They are called subserous or extra-mural when on its outer surface; interstitial or intramural when embedded in, and enveloped on all sides, by the muscular structure of the uterus; and intra-uterine or submucus, when in the cavity of the uterus, with broad attachments to its walls. The first variety is, as a rule, not amenable to surgical treatment. The other two are. Histologically intra-uterine polypi and intra-uterine fibroids are identical, differing only in the manner of their attachment to the walls of the uterus. The polypus is pedunculated, while the fibroid, so-called, is sessile; the former is attached to the fundus or to some portion of the inner surface of the uterus by a firm, fibrous band, varying in size from half an inch to an inch or more in diameter, while the latter is extensively attached by fibrous and cellular tissue.

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* Read at the annual meeting of the New York State Medical Society at Albany, February 6, 1874.

† Prize Essay: "The Surgical Treatment of certain Fibrous Tumors of the Uterus, heretofore considered beyond the Resources of Art." By Washington L. Atlee, M. D., of Philadelphia. Extracted from the Transactions of the American Medical Association for the year 1852.

It is only within the last ten years that the removal of intra-uterine polypi has been rendered absolutely safe. By the old and clumsy method of ligation the mortality was immense. But by the modern method with the écraseur, and by the still easier method of excision with scissors, their removal is positively free from all danger. I have never seen a death, nor have I ever heard of one, from either direct or remote consequences of a properly-performed operation for polypus.

Intra-uterine fibroids are usually, I might say almost always, capsuled. They are sometimes polycystic; but more frequently solid. When cystic, the cysts vary in size from that of a filbert to that of an orange or a cocoa-nut. The solid tumors are generally more easily removed, because their tissue, being more resistant, does not break down so readily under forcible traction.

It is my intention here to speak of the improved methods of removing these tumors when practicable. I say practicable, because there are many cases, perhaps the majority, where operative measures are not called for, and would be unjustifiable. A fibroid is not, *per se*, a dangerous thing. It is rarely dangerous except when it gives rise to severe hæmorrhages, and then only are we justified in attacking it by surgical means. If there is no unusual and exhausting loss of blood, it is wiser and safer for the patient to accept her condition as one of infirmity, and to make the best of it. Under these circumstances the tumor is simply a matter of inconvenience, producing temporary but bearable discomfort by mere mechanical pressure cn the pelvic organs, and this generally only when the tumor is comparatively small. When it grows large enough to rise above the brim of the pelvis, the patient suffers only as she would with the gravid uterus at a similar state of development.

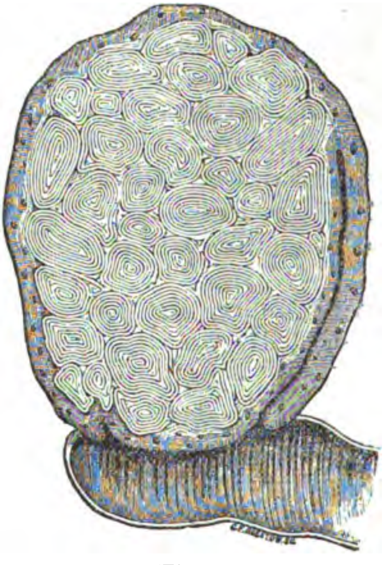
But, laying aside generalities, I shall proceed at once to illustrate the principles of treatment by detailing a few cases that have occurred in my practice (private and hospital) since our last meeting:

CASE I.—Mrs. H., aged forty-six years; mother of four children, all grown; has had menorrhagia for the last seven years. At first it was attended with great pain, but latterly the bleeding has been of a passive character, and painless. A few months before I saw her, she applied to a physician (female), who cauterized what was supposed to be granular erosion of the os. After a while, another physician was called in consultation, and the cauterizations were continued. By-and-by they discovered that it was not a simple case of granular erosion, but a tumor of some sort protruding from the canal of the cervix. The patient soon afterward fell under the care of Dr. E. H. Parker, of Poughkeepsie, who at once recognized the true character of the disease, and sent for me, saying we had to deal with an intra-uterine fibroid. I saw the case on the 6th of July, and agreed with him as to the necessity of surgical interference.

Mrs. H. was completely anæmic. When she was not losing blood, she had a profuse muco-albuminous leucorrhœa from the cavity of the uterus, which was quite as debilitating as the loss of blood. The os tincæ was found dilated to about an inch in diameter; the rounded, glistening surface of the tumor could be felt and seen on a level with the thinned edges of the os; the finger could be passed high up into the cavity of the uterus anteriorly and to the left side; everywhere else the tumor was closely attached to the walls of the womb. Altogether the case was favorable for operation, and we thought it should be done at once. But Dr. Parker had two cases of erysipelas under his care at the time, and we feared to perform the operation at Poughkeepsie. As I was then at Newport for the summer, Dr. Parker sent his patient there for operation, and it was performed on the 26th of July. Dr. Sands, Dr. Engs, and Dr. Watson assisted, and Dr. Harry Sims gave nitrous-oxide gas. It took about two minutes to produce anæsthetia; the operation lasted seven minutes, and in one minute more there was entire consciousness; she was, then, just ten minutes under the influence of the gas. The tumor, about the size of the fist, was enucleated and removed with comparative ease. I did not allow any great loss of blood during the operation, for, as the attachments between the tumor and its capsule were broken loose, a sponge-probang was thrust up along the track of the enucleator to arrest the bleeding. When the tumor was removed, I passed several pledgets of iron-cotton into the cavity of the uterus. They were about the size of the first joint of the thumb, and each was tied with a strong thread to facilitate removal.

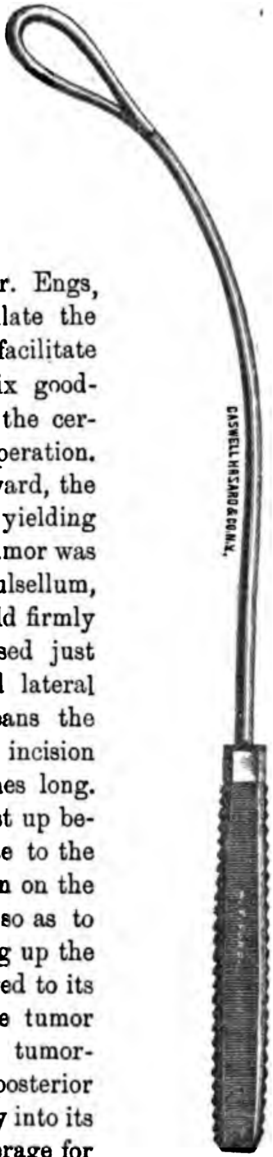
The day after the operation, the two lower pledgets were removed; on the second day two more; and on the third the remaining two. Vaginal carbolic washes were then freely used, and in a fortnight Mrs. H. returned home well, and soon regained all the freshness and vigor of robust health.

Case II.— Mme. de ——, of the city of Mexico, aged thirty-eight years; married at thirteen; gave birth to a child at eighteen; and had a miscarriage at twenty-four. Soon after this her health began to fail. She had nausea, and occasional vomiting; the abdomen began to enlarge, and she supposed herself pregnant again, notwithstanding the fact that she was regular. In about six months she had a violent hæmorrhage during one of her periods, and this occurred several times at intervals of five or six months. For the last four or five years the hæmorrhages have been severe and prolonged, often continuing from one menstrual epoch to the next. A year ago she consulted the eminent surgeon, Dr. Martinez del Rio, of the city of Mexico, who informed her that she had a large intra-uterine fibroid, and he sent her to New York for operation. I saw her in June, 1873. She was anæmic, exhausted, and quite nervous from loss of blood. The os tincæ was dilated to about the size of a silver dollar, and the tumor could be seen and felt presenting at the os, but not projecting through it. The finger could be easily passed by the side of the tumor into the uterine cavity, where the tumor was felt to be firmly attached to the walls of the uterus in every direction, except anteriorly (Fig. 1). The sound could be passed into the cavity between the anterior wall and tumor to the depth of five inches. The tumor was a pure myoma, and altogether favorable for operation—favorable: First, because the os was already dilated. Second, because the tumor was firm, hard (non-cystic), and not liable to give way under strong traction. And third, because it



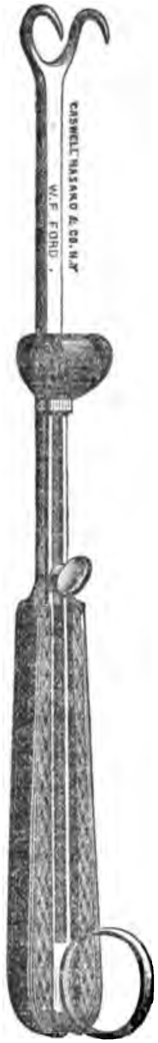
(Fig. 1.)

was probably not larger than a good-sized orange elongated by pressure. When Mme. de —— arrived in New York, we were passing through the epidemic of puerperal fever, which will long be remembered for its great mortality. Of course, I did not dare to perform such an operation in such an atmosphere, and she was sent to Newport to await my arrival there. The operation was performed there on the 15th of August, 1873, Dr. Samuel W. Francis, Dr. Engs, and Dr. Harry Sims, assisting. To dilate the cervix to its greatest extent, and to facilitate the removal of the tumor, five or six good-sized sponge-tents were passed along the cervical canal the evening before the operation. On their removal twenty hours afterward, the os was considerably larger and more yielding than before their introduction. The tumor was seized at its projecting part with the vulsellum, pulled toward the os externum, and held firmly while with scissors its capsule was incised just at its junction with the posterior and lateral portions of the cervix. By this means the capsule was opened by a semilunar incision from two and a half to three inches long. The enucleator (Fig. 2) was then thrust up between the tumor and its capsule quite to the fundus uteri, first on one side and then on the other, and then it was moved laterally so as to pass around the tumor, thus breaking up the slender connections by which it adhered to its capsule. This manœuvre finished, the tumor still firmly held by the vulsellum, the tumor-hook (Fig. 3) was passed up along the posterior surface of the tumor and hooked deeply into its substance, thus giving an immense leverage for



(Fig. 2.)

evulsion. While forcible traction was made with this tumor-hook, the enucleator was again passed in every direction between the tumor and its capsule. Notwithstanding all this and in spite of the seeming non-adherence of the tumor, it could not be extracted. It was then discovered that the tumor was too large to pass through the cervix. This made it necessary to incise the cervix with scissors in four different directions quite down to the vaginal insertion. The tumor was then quickly removed, and so suddenly as to fall over the edge of the operating-table.



(Fig. 3.)

The time of the operation was twenty minutes. Pledgets of iron-cotton were passed to the fundus to arrest the hæmorrhage, which was not profuse. These were removed twenty-four hours after the operation, and the vagina was freely syringed with carbolized water three or four times a day. In a week there was no discharge whatever from the cavity of the uterus. In a fortnight Mme. de —— was able to go out, and considered herself well. In a month the four incisions made in the cervix had healed entirely, and the os presented a perfectly normal appearance.

The cases above related were easy to operate upon, because the tumors had forced their way down and dilated the os and cervix, so that the first stage of the operation had been performed by the efforts of Nature, and enucleation alone was left to the art of the surgeon.

When the os and cervix are in a normal condition, and the tumor is incarcerated wholly within the cavity of the uterus, the process of bringing it down and enucleating it is somewhat tedious—as, for example, in the following cases:

Case III.—Mrs. S., aged thirty-five, the mother of four children, the youngest six years old, had been subject to menorrhagia ever since the birth of the last child. Latterly she lost such large quantities of blood that her physician, Dr. John J. Crane, was obliged on several occasions to use the tampon. At last he resorted to the sponge-tent to dilate the cervix, when he found a fibroid firmly attached to the posterior and lateral portions of the body of the uterus. It was supposed to be about the size of a large orange flattened, and wholly above the os internum, which was very much contracted. Dr. Crane was on the eve of leaving for Europe, and he turned his patient over to my care in June last.

Mrs. S. was so weak and exhausted from loss of blood, that Dr. Crane thought, with me, that no time should be lost in removing the cause of the bleeding. She suffered greatly from the excessive heat of the city, and we sent her to Newport early in July. The subsequent menstruation was in a measure controlled by tampons of iron-cotton, and by the adminstration of Squibb's new preparation of ergot, the aqueous extract.

The first step toward getting the tumor away was to incise the cervix bilaterally quite up through the os internum. This was done about the middle of July. The next menstruation would in all probability have been as severe as ever, but she took Squibb's aq. ext. secale cornut., and the cavity of the uterus was firmly tamponed with iron-cotton. In this way she went through August and September. Soon after the October menstruation, the canal of the cervix was freely dilated with sponge-tents, the finger introduced as a guide, and, with the uterotome, the capsule of the tumor was split longitudinally from above downward for about three inches. The bleeding was profuse, but readily checked by an iron-cotton tampon passed to the fundus uteri. The November period was, like the preceding one, controlled or modified by ergot internally, and iron-cotton locally. In December the loss of blood was terrific; the uterus seemed to be large and flabby; the os and cervix were unusually large and relaxed; and to arrest the bleeding it was necessary to pass three plugs of iron-cotton, four or five inches long, and as large as the thumb, quite up to the fundus, and then to pack the vagina very firmly to hold them *in situ.* On their removal forty-eight hours afterward, the os and cervix were found dilated to nearly two inches in diameter; and on the next day the tumor was projecting to a slight extent through the os into the vagina; and on the following day it was found to protrude farther, and to be in a sloughy condition The patient's condition was now a very bad one. Her pulse was 146, temperature 104½°, and she was evidently suffering from septic poisoning. As no time was to be lost, assistance was hastily summoned. Dr. Henry D. Nicoll gave ether, and with the assistance of Dr. Crane and Dr. Harry Sims the tumor was removed in twelve minutes. The pulse and temperature each went rapidly down as soon as the semi-gangrenous mass was removed. In a few hours the patient was out of all danger. But she was so exhausted that her convalescence was tedious, and she was not able to be up and about for fully two months. The uterus was filled with iron-cotton in this case as in the preceding; it was removed on the following day. It was necessary to wash out the cavity of the uterus twice a day with a double-current catheter for a month or more after the operation. I have often seen the pulse fall eight or ten beats in the minute, and the temperature one degree, and all in ten minutes after washing out the cavity of the uterus. Mrs. S. is now well.

CASE IV.—Mrs. M., from the State of Texas, aged thirty, married ten years, sterile, had had painful menstruation for many years, and for the last five it had been very profuse. Her physician, Dr. Rufus Nott, of Texas, having exhausted the ordinary means of treatment, sent her to me last August for operation. To the touch the uterus felt to be about the size of the organ at the fourth month of pregnancy, but harder and more unyielding. The probe (gum-elastic) passed to the depth of six and a half inches. The tumor seemed to project posteriorly, and to the left, as felt through the posterior *cul-de-sac* of the vagina. Exploration of the uterus, after the use of sponge-tents, showed that its cavity was on the right, and that the tumor, which was probably as large as the fœtal head, was adherent, posteriorly, anteriorly, and to the left side of the uterus; indeed, that it was adherent everywhere except along the right side of the organ. The os and cervix were of virgin form, very small, and barely admitted the passage of a No. 6 bougie. Of course, the first step was to incise the cervix bilaterally, which was done in August last. Aq. ex. secal. cor. was given during the periods, and at intervals between them.

In October the cervix was dilated with sponge-tents, and the capsule of the tumor was deeply incised for about four inches from above down toward the os internum. Very soon after this the tumor began to encroach upon the neck of the uterus and to dilate the os; and by the middle of December the os was two inches in diameter, and the tumor was presenting on a level with its margins. On January 11, 1874, the os was fully three inches in diameter, and the operation of enucleation was performed. Dr. James R. Wood, Dr. Thomas, Dr. Bixby, of Boston, Dr. Perry, Dr. Baker, Dr. Nicoll, Dr. Harry Sims, and others, were present. The capsule of the tumor was first opened at its junction with the posterior portion of the cervix, then on the left side, and around on the anterior segment of the cervix. Then the presenting portion of tumor was grasped by the vulsellum and pulled forward, while the enucleator was pushed between the tumor and its capsule quite up to the fundus, anteriorly, laterally and posteriorly, and then swept around the tumor to break up adhesions that might have escaped the previous thrusts of the enucleator. The tumor was large, and the cervix was not sufficiently dilated to allow it to pass easily, and I was obliged to incise the cervix with scissors in four different directions, quite down to the insertion of the vagina. When I began the operation I expected to finish it in fifteen minutes, but it required nearly an hour. After its removal, the loose shreds of capsule attached to the walls of the uterus were trimmed off with the scissors, and the uterine cavity plugged with iron-cotton. Two hours after the operation there was severe hæmorrhage (which was, I suppose, from the circular artery), and it was necessary to make additional pressure with the iron-cotton tampon. These tampons were removed in forty-eight hours, and the vagina was freely washed out several times a day with carbolized water.

The tumor was the largest I have ever removed from the cavity of the uterus, and weighed two pounds less one ounce. About ten days after the operation there was a sudden discharge of pus from the vagina, which for several days I supposed to be from the cavity of the uterus; but, on careful examination with a speculum, I found that it came from a pelvic abscess on the left side of the uterus which had opened into the vagina at the left border of the posterior *cul de-sac.* I am glad to say that Mrs. M. is now convalescing.

CASE V.—A lady, forty-five years of age, supposed herself to be undergoing what is called "change of life." She had had profuse and prolonged losses of blood for five or six years, attended at times with great pain. Prof. Loomis kindly referred her to me. The uterus, to the touch, seemed to be considerably above normal size. Its depth was four and a half inches. The os was small, and the cervix indurated. A glairy, yellowish mucus passed from the cavity of the uterus between the periods of menstruation. Dilatation of the cervical canal and digital exploration of the cavity could alone reveal the true nature of the disease. When I removed the sponge-tent I fully expected to find the cavity of the uterus filled with fungoid granulations, to be removed with the curette. But I found a fibroid, the size of a hen's egg, and of unusual hardness, attached to the anterior wall of the uterus. The diagnosis being now complete, I determined to remove the tumor. Five or six good-sized sponge-tents were then introduced, and on the next day the operation was performed with the assistance of Dr. Nicoll and Dr. Harry Sims. The cervix was well dilated, and the tumor was brought down with hook and vulsellum, but it was impossible to draw it out of the uterus till the os was freely divided into four sections with scissors, as in the cases previously related. The operation was then finished, and the cavity of the uterus plugged with iron-cotton. This was removed on the next day, and the usual carbolized vaginal douches were ordered. In a week there was no abnormal discharge from the uterus. In a fortnight the patient was up and about the house, and she was in good health. I saw her six weeks after the operation, and the os was normal—not the slightest evidence that it had been incised in four different directions down to the insertion of the vagina. And the same thing was found in all the cases previously related where it was necessary to make these slashing incisions in the cervix.

But intra-uterine fibroids do not always wait for the tardy interference of the surgeon. They occasionally break through the investing capsule, and are forced out into the vagina by the expulsive efforts of the uterus. And, again, they may pass out so gradually and so easily through the slowly-expanding cervix that they are extruded from the uterus without seeming suffering. But, once in the vagina, their presence is often made manifest in a very disagreeable and even dangerous way.

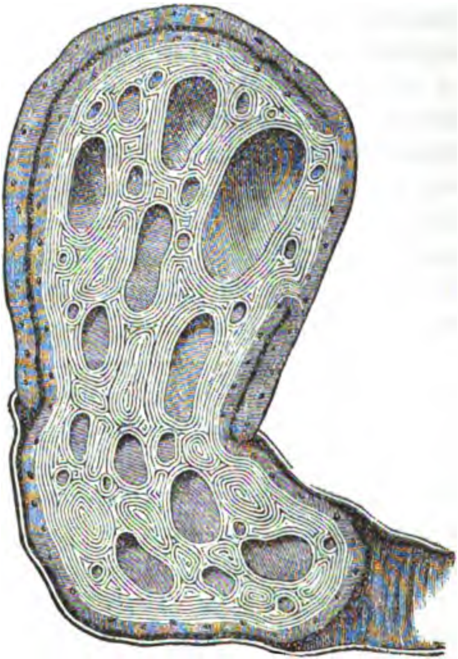
A lady of well-known literary reputation, aged about thirty-seven, the mother of four children, the youngest eight years old, was traveling in the East in 1868. With the exception of some little menstrual disturbance, her general health was good. In Syria she necessarily rode a great deal on horseback. In Jerusalem she had profuse menstruation for the first time. In Rome she was very ill, and sent for a physician, who told her to go to Paris as soon as she could get there. On her arrival in Paris she was very seriously, dangerously ill, and she wrote to her banker to send her a physician. The banker sent his own family physician, who is very accomplished as a physician, but makes no pretensions to surgery. He found that his patient had had hæmorrhages from the uterus, that she was completely bloodless, and in a very exhausted condition. Besides this, there was a fœtid discharge from the vagina, very suggestive of malignant disease. The Doctor called me at once to see the case with him. Judging alone from the fœtor, I did not wonder that he thought she had a cancer. On examination, I found that it came from a fibroid in the vagina, which had passed out of the womb, and was in an advanced state of decomposition. As she was rapidly dying of septic poisoning, no time was to be lost; so we at once proceeded to remove the gangrenous mass by severing its attachments from the posterior wall of the womb—and thus a valuable life was saved, that is to-day an honor to literature and to our country.

In 1869, Dr. John J. Crane asked me to see a lady with him, who had, as he supposed, an intra-uterine fibroid. The uterus was as large as at the fourth month of gestation. She was of a consumptive family. She had hæmorrhoids and fistula in ano, and was losing large quantities of blood at each menstrual epoch, and she had a cough and some lung-trouble. She was exceedingly frail and delicate, and, as her family had all died of consumption, Dr. Crane was afraid to cure up the rectal trouble, and more particularly as one member of the family had died in consequence of operations performed on the rectum. With such a family history, I was quite as unwilling as Dr. Crane to interfere rashly with the case. So we agreed to use the sponge-tent, to operate if we found a polypus, but to do nothing if it turned out, as he expected it would, to be a fibroid. The dilatation of the cervix revealed a large fibroid broadly attached to the anterior wall of the womb. According to previous understanding, we simply injected a drachm of the tr. of iodine into the cavity of the uterus. A few hours afterward our patient was taken with violent pains—real labor-pains—that continued all night and during the following day. Late in the afternoon the pains ceased all at once, and something protruded from the vulva, which gave rise to a suspicion that Dr. Crane and myself had unwittingly been guilty of producing an abortion. Dr. Crane immediately sent for me, and on my arrival we found an enormous fibroid completely filling the vagina, and projecting from it beyond the vulva. It was firmly attached to the anterior wall of the uterus by strong fibrous bands, which were severed with great difficulty. Our patient made a rapid recovery, and now bids fair to outlive her family inheritance.

Prof. Crosby, of Bellevue Hospital Medical College, during a recent visit to Vermont, was called to see a case of menorrhagia. After an examination, he told the patient that the bleeding was due to a fibroid of the uterus. He prescribed large doses of elixir of vitriol, to be taken three times a day. She took the medicine regularly for some months; the hæmorrhage was controlled; and she had regained her usual degree of health, when the doctor happened to see her again. He was so much surprised at the change effected, that he asked to examine the state of the womb. His surprise was increased when he found the uterus restored to a normal state, and a fibroid as large as an orange lying loose in the vagina. Such cases as this are to be found, I believe, recorded in the books.

So far we have been speaking of the simple fibroid—the pure myoma of the uterus. The fibroid-cystic myoma grows to a great size, and I have removed two as large as a seven months' fœtus.

Case VI.—On December 13, 1873, Dr. James O. Smith, of New York, sent Catharine Hogan to the Woman's Hospital, who was in a bloodless and most exhausted condition. She was forty-five years old, and a widow six years. In early life she had painful menstruation, and was sterile. For the last four or five years she had lost large quantities of blood, but the bleeding ceased in June last, since which time there has been an abundant watery mucus discharge from the vagina, which latterly became very offensive. She was perfectly blanched, and anæmic to the last degree. The uterus was greatly enlarged and reached above the umbilicus. The vagina was filled with an elastic fibro-cystic tumor the size of the fœtal head (Figure 4). The cervix uteri was dilated to its fullest capacity, as in labor when the head has passed into the vagina and rests on the perineum. That portion of the tumor to be seen in the vagina was of a motley grayish color, and evidently in an incipient state of gangrene, giving out a decomposed, purulent secretion of bad odor. The operation was performed on the 15th of December. The vaginal portion of the tumor was broken down with scoop and fingers and clawed out by piecemeal. The hand was then passed into the uterus, and with the aid of the enucleator and scissors the whole of the mass, quite as large in bulk as a seven months' child, was removed in twelve or fifteen minutes. At one time I thought I had thrust the enucleator through the walls of the uterus into the peritoneal cavity, but, by passing the hand farther up into the cavity of the uterus, I found that it had simply entered and broken down an immense cyst. After the removal of all the solid portions of the tumor, I passed long scissors by the side of the hand and cut away all the loose fibrous shreds by which the tumor was so extensively attached to the anterior and lateral portions of the walls of the uterus. There was severe hæmorrhage, and it was necessary to hasten the operation,



(Fig. 4.)

and to properly tampon the uterine cavity with iron-cotton. Two sources of danger attended this operation: 1. Hæmorrhage from large venous sinuses unavoidably opened by the operation. 2. Septic poisoning from decomposing fluids retained in the cavity of the uterus afterward. To avert the first danger, the operation was necessarily rapid, and the arrest of bleeding was as necessarily prompt and efficient. To prevent the second, it was important to remove the tampons from the uterine cavity as soon as it could be safely done after the bleeding was permanently arrested, and then to freely wash out the cavity of the uterus. The whole of the vaginal tampon was removed eighteen hours after the operation, and in six hours more the uterine tampon was removed. Before this was done, the pulse was 132, and temperature 103½°. After its removal, a thorough irrigation of the uterine cavity was effected by passing a gum-elastic catheter to the fundus and attaching it to a Davidson syringe. A large quantity of carbolized warm water was thrown in, greatly to the comfort of the patient, and in ten minutes afterward her pulse fell 12 beats (120), and temperature one degree (102½°). Dr. Baker, house-surgeon to the Woman's Hospital, had charge of the case, and he washed out the uterus with carbolized water every two hours for the subsequent twenty-four hours, when her pulse fell to 96, and temperature 99½°. On the next day he injected the uterus every four hours, and on the sixth day every six hours. By this time the discharge became purulent, and he washed out about two ounces of laudable pus at each sitting.

Seventeenth Day.—The uterus is now but three and a half inches deep.

Nineteenth Day.—Has been doing well ever since operation until now. She complained of "feeling sick all over," and this afternoon she had a chill, followed by intense fever. For six hours her pulse was 160, and temperature 106°. As she had never had intermittent fever, it was inferred that the attack was pyæmic. She was put on quinine (24 grs. daily), and on washing out the uterus it was found to be full of intensely-offensive matter. As there was no return of the chill, it is altogather probable (I may say certain) that this retained matter was the sole cause of the violent constitutional disturbance. Dr. Baker fortunately discovered that the os internum was contracted, and that there was no spontaneous evacuation of the vitiated secretions from the cavity of the uterus, so he went to work to adapt a drainage-tube to secure a constant drain from the uterus. He succeeded in fitting a block-tin tube about three inches long, which remained permanently in the canal of the cervix, whereby the cavity was kept constantly drained.

From this time there was no other accident. At the end of ten days, Dr. Baker found that there was no more pus coming from the uterus, and he removed the drainage tube. His patient was soon sent home in a thriving condition, and has continued well since.

I feel sure that this poor woman owes her life wholly to the untiring attention and skillful management of Dr. Baker.

But let me not lead you to think that all intra-uterine fibroids are curable by operation, or that operative procedures are without danger. While I have brought forward this formidable list of successful cases, occurring in a comparitively short space of time, it is my duty to show you the obverse of this picture.

1. In August last I operated on a case in the Woman's Hospital, which was in all particulars like the one just described. The size and character of the tumor, the attachment to the walls of the uterus, the dilatation of the cervix, the descent into the vagina, the incipient decomposition, and attendant discharge, the method of operation by breaking down the tumor and clawing it out with the hand, and the manner of arresting the subsequent hæmorrhage, were all precisely as in the case before described; and yet my patient died on the fourth day after the operation.

A *post-mortem* examination showed that the tumor had been neatly and cleanly removed. But, just where the tumor was attached to the walls of the uterus, a cyst was found holding six or eight ounces of decomposed sero-pus, the absorption of which was doubtless the septic cause of death. If this flattened cyst could have been detected and opened at the time of operation, I would, in all probability, have had the happiness of making a different report of the case.

2. In May last, a lady came to see me from Brooklyn, who had had menorrhagia for five or six years. She was forty-two years old, the mother of three children, two of them grown, the youngest six years old. The os tincæ was dilatable, and so was the cervix, which easily admitted the finger to the os internum. But this was very much contracted, and of gristly hardness. Depth of the uterus seven inches and a half. A sponge-tent revealed a fibroid, as large as the fœtal head, attached to the whole anterior surface of the body of the uterus. She was under observation for a long time before I dared to do anything radical for her relief. It was difficult to control or modify the hæmorrhages, and they exhausted her so much that I could not get her in proper condition for operation till it was time for the flow to come again, and in this way she went through the hot summer months. In October I introduced sponge-tents, intending to incise the capsule, and make an effort to partially enucleate the tumor and draw it down against the os internum. I had no hope of doing more. I should have mentioned that she was a very large woman, very anæmic, and somewhat dropsical, having some œdema of the lower extremities. In this connection, I am sorry to say that I neglected to analyze the urine, taking it for granted that the œdema was due to the loss of blood. On the 15th of October she was put under the influence of ether, the cervical canal being fully dilated with sponge-tents. On their removal I made incisions into the capsule of the tumor, longitudinally and transversely, just above the os internum, but the hæmorrhage was so profuse that I could do no more, and I was obliged to fill the cavity of the uterus with the iron-cotton to arrest the bleeding. I have often been alarmed at the dangerous effects of chloroform, but never before by those of ether. But in this case the coma was

more profound than usual, the stertor more aggravated, and the lividity of the head and face as marked as when we give nitrous-oxide gas. I can not say that she ever fully recovered from the effects of the ether. She was somewhat incoherent during the night, and on the following morning (10 o'clock) she went into convulsions, from which she never recovered, dying in eight hours, with all the symptoms of uræmic poisoning. She did not die of the fibroids, nor of the operation, nor of loss of blood, nor of shock, but simply of uræmia, provoked or called into action by the effects of the etherization.

3. One more fatal case. A sponge-tent was introduced into a narrow cervical canal to explore the cavity of the uterus, in which there was a fibroid the size of the fœtal head. On the following day a chill ushered in the danger, and the patient died on the seventh day. A post-mortem examination revealed an abcess, which had burst into the peritoneal cavity, producing peritonitis.

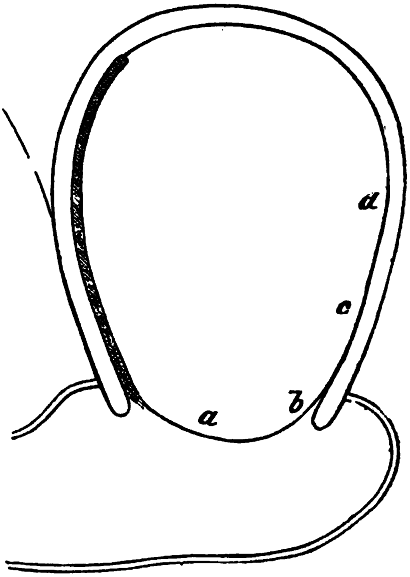
4. Dr. E. H. Parker, Poughkeepsie, sent me a patient in October, 1872, who had a uterine fibroid of enormous size. The os was very small, and the cervix was very small and indurated. A sponge-tent was introduced, and in a few hours it was necessary to remove it. The most violent constitutional disturbance was set up; my patient was exceedingly ill for six weeks, and barely escaped with her life. But the profuse hæmorrhages have ceased, and she is now enjoying a fair degree of health.

While my first series of cases demonstrates very conclusively the results to be accomplished under favorable circumstances, the second proves as conclusively the dangers that await us at every turn. Still I think we have made good progress, and I look upon the enucleation and removal of intra-uterine fibroids as one of the great achievements of modern surgery.

When Nature attempts the expulsion of any foreign body from the cavity of the uterus, whether it be a fœtus or a fibroid, the first step toward accomplishing it is a sufficient dilatation of the os. So, in removing an intra-uterine fibroid by artificial means, we must imitate the work of Nature. We must be guided by certain fixed principles if we expect to succeed: 1. The cervical canal must be freely opened. 2. The tumor must be freed from the restraint of its investing capsule.

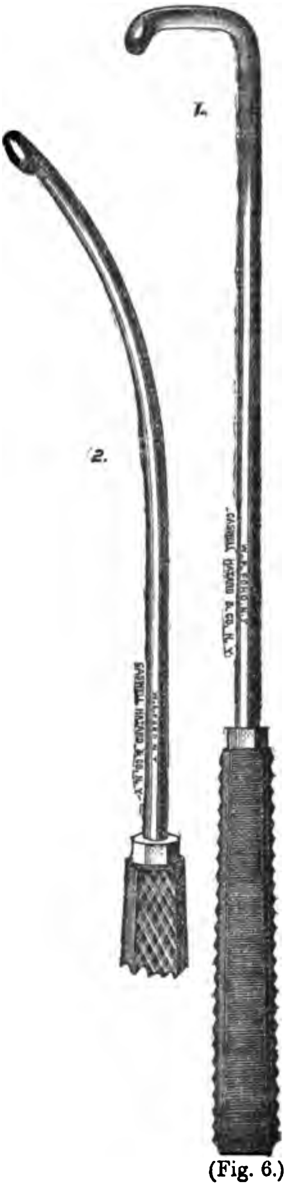
When the capsule is incised, we expect the tumor to come slowly down and gradually dilate the cervix. Its enucleation should not be attempted till we feel pretty sure that the cervix is nearly sufficiently dilated for it to pass. And not then, till the rounded end of the tumor presents on a level with the borders of the dilated os. If we attempt enucleation with the lower portion of the tumor above the os internum, failure will be the inevitable result, that is, if the tumor be large. When the tumor is small, say the size of a nut or an egg, these rules are inapplicable. We are then to proceed to bring the tumor out at once, as was done in Case V.

To illustrate the process of enucleation, let us suppose a case. Let us suppose that we have to deal with a filbroid as large as an orange or as the fist, attached to the posterior and lateral walls of the uterus; that the anterior wall is free from attachments to the tumor; that the os is dilated to 2½ inches or three inches in diameter; that the tumor is a solid myoma; and that it can be seen and felt on a level with the edges of the expanded os tincæ (Fig. 5). It will be well to introduce four, five, or six medium-sized sponge-tents, six or eight hours or more before the operation. These will soften the cervix and dilate the canal still more, and thus facilitate the operation. With such a case as this, we may promise a speedy, safe, and successful operation. And now for the process of operating: 1. The patient is to be placed in the left lateral semi-prone position, and the vagina opened with a Sims speculum. 2. The presenting portion of the tumor is to be seized at *a*, Fig. 5, with a strong vulsellum, and pulled forward. 3. The capsule of the tumor is to be opened with scissors at the place of its attachment to the posterior and lateral portions of the cervix (at *b*, Fig. 5), and here we must be sure not to dissect the capsule from the cervix, but to cut squarely into it, and then pass the index-finger through the opening thus made between the tumor and the capsule, which should be left attached to the walls of the uterus. The capsule should be divided all around, and in close proximity to the borders of the cervix. There is no better enucleator than the finger, but, as it can not reach to the fundus, it is necessary to supplement it with something that can; and this brings us to the fourth stage of the operation. 4. While the tumor is firmly held and pulled forward by the hook or vulsellum, the enucleator (Fig. 2) is rapidly pushed up between the tumor and its capsule, which remains attached to the walls of the uterus. It is carried quite to the fundus. It is then withdrawn and pushed up in another quarter, and this is repeatedly done, and when the loose cellular tissue and strong fibrous bands are thus lacerated, the instrument is carried circularly around the tumor, so as to insure a complete disruption of all connecting bands between it and its capsule. Fig. 2 represents the enucleator that I formerly used. It is a steel rod twelve or fifteen inches long, looped at the end. This is to



(Fig. 5.)

prevent all danger of running the instrument through the fundus when it is thrust up high. But in Case IV. I found it impossible to break up the strong fibrous bands with this instrument, and so I have modified it, for the better, I think, by substituting, for the loop, a blunt hook, Fig. 6, bent at right angles with the shaft. This can be carried to the fundus with the same impunity as the other, and then in withdrawing it we can make the hook most efficient in tearing up the firmest fibrous bands. Although I have had no opportunity of trying this instrument, I am satisfied that it will prove far more powerful than the old one, and quite as safe. The shaft of the instrument is slightly curved, as shown in 2, Figure 6. When the adhesions are all satisfactorily broken up with the enucleator, we are ready for the fifth and last stage of the operation, that of the evulsion of the tumor. 5. And here, while the tumor is still forcibly pulled forward with the vulsellum, we pass a double hook (the tumor-hook), Fig. 3, up along the posterior surface of the tumor as far into the cavity of the uterus as possible, say to *c* or *d*, Fig. 5, and this is the power with which the end is to be attained. With the hook the tumor is pulled down and and slightly rolled on its vertical axis, while we still use the enucleator to separate any unbroken bands of at-



(Fig. 6.)

tachment that may have evaded our previous efforts. As the tumor gradually yields to traction, and comes slowly down, another hook is passed farther up and hooked into the tumor above the first, and, by traction with this, combined with the continued efforts of the enucleator, the tumor rolls out so suddenly that it seems almost to leap through the vulva. In some instances it rolls on its vertical axis to such a degree that the part attached to the fundus is really the first to pass through the vulva. This is of course when the instrument is passed up high enough to hook the tumor near the fundus. But the tumor may be too large to pass through the os, even after all attachments are freely broken up; then we must resort to incision of the cervix with scissors down to the insertion of the vagina, as already described in the preceding pages.

The tumor-hook has a hard rubber shield, which slides along the shaft, and can be pushed up to the hook when we wish to liberate it from its hold, for the purpose of removing it, or of changing its point of action.

On the evulsion of the tumor, the uterus instantly contracts, just as it does in expelling the fœtus. Any loose shreds of membrane felt in the uterus are to be cut off with scissors. In most cases, the hæmorrhage, after this operation, is slight. In a few it is severe. It is, at all events, safe to guard against any danger of this sort. For this purpose, I pass a plug of iron-cotton into the cavity of the uterus, and quite to the fundus, which is to be held *in situ* by a vaginal tampon. All of this should be removed as soon as possible—say in twenty-four or thirty-six hours after the operation—in less time, if there are any evidences of septic poisoning. The iron-cotton is made in this way. Take the finest purified cotton-wool,* such as is used by jewelers and dentists, wet it thoroughly with simple water, squeeze all the water out, and then saturate it with a mixture of liq. ferri subsulphatis and water (one part to two), press it out into layers an eighth of an inch thick, more or less, about the size of the hand; these layers are to be pressed between the hands, or on the side of the bowl or vessel containing the mixture, till they are nearly but not quite dry; and then they are to be stuffed into a large-mouth bottle, and kept ready for use. A little of the fluid may be poured on the iron-cotton in the bottle, to insure a sufficient dampness, and then the bottle is to be securely corked. When we wish to use the iron-cotton, a sufficient number of wads is to be removed from the bottle, and each one is to be spread out into sheets, and subdivided into thinner layers, as may be needed. Formerly, I pushed the iron-cotton, tied with strong thread and rolled into little balls, up into the cavity of the uterus with forceps; but I soon found that this was not the best plan either for introduction or removal. The easiest and best method is to take a strong bit of whalebone, twelve inches long, or more, tapering to a point, smoothly polished and slightly curved near its tapering end. If we wish to introduce a tampon into the cavity of the uterus, four, five, six, or even seven inches long, that much of the whalebone rod, previously smeared with lard or cold cream, is to be wrapped with sheets or layers of iron-cotton till the tampon is of the requisite size. It may be made as large as the thumb, or twice as large, gradually tapering to the end. It is then to be smeared with lard or cold cream, and passed up to the fundus uteri. If necessary, another smaller one, quite as long as the first, may be passed by the side of the first one. I have often introduced two or three before I felt sure of arresting the bleeding. These are to be held *in situ* by two or three wads of iron-cotton placed over the os, and secured there by a firm tampon of plain cotton, wet with water, and squeezed dry. In a few hours—ten or twelve—the vaginal tampon must be removed, and the uterine tampon should be removed in twenty-four hours, or at the farthest thirty-six hours.

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* This cotton-wool may be found at Caswell, Hazard & Co.'s.

Fig. 7 represents a tampon-screw for removing tampons, whether vaginal or uterine. Place the patient on the back; introduce the left index-finger in the vagina; pass the screw in by the finger; twist round till it takes firm hold of a wad of cotton, which may then be pulled out. In this way every portion of the tampon may be quickly removed without fatigue or much discomfort to the patient. That portion of the tampon in close proximity (the iron-cotton) to the cervix may be removed with greater difficulty, because of its firm adhesion to the parts in contact with it. The tampon removed, the vagina must be thoroughly washed out with warm carbolized water, and, if there is any evidence of septic poisoning, the cavity of the uterus must be thoroughly cleansed by throwing carbolized warm water freely into the cavity quite to the fundus.

P. S.—While the preceding pages were in press, I received M. Péan's work* on the removal of uterine fibroids by gastrotomy, which throws new light on this formidable and heretofore comparatively unsuccessful operation. His pecular method of operating, and his success, force me to modify the views I have held on this subject.

In 1843 Charles Clay, of Manchester, to whom we owe so much for ovariotomy, had the hardihood to extirpate the uterus for a fibroid tumor. Since then, according to M. Péan, this operation has been performed in England eleven times, two cured; in America eleven times, four cured; in France eighteen times, eleven cured.

The cures have been, according to this table, in England, 18 per cent.; in America, 36 per cent.; in France, 61 per cent.

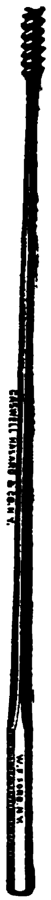

Fig 7

Taking the operation of Koeberle and Péan separately, we find that Koeberle has cured four cases out of six, or 66⅔ per cent., and Péan seven cases out of nine, or 78 per cent. Three of Péan's cases were intra-uterine, and might have been removed *per vias naturales*, by enucleation. The others were extra-uterine, and could not have been removed otherwise than by gastrotomy.

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* Hysterotomie—de l'Ablation partielle ou totale de l'Uterus par la gastrotomie. Étude sur les Tumeurs qui peuvent nécessiter cette Opération. Par J. Péan, Ancien Prosecteur, Chirurgien des Hôpitaux de Paris; et L. Urdy, Interne des Hôpitaux de Paris, Laureat de la Faculté de Médecine de Montpelier. Ouvrage orné de 25 figures dans le texte et de 4 planches. Paris: Adrien Delahaye, 1873.

In England this operation has been performed successfully, once by Charles Clay, and once by Mr. Fletcher. In our own country, Dr. Burnham, Dr. Kimball, Dr. Boyd, and Dr. Storer, have each had a successful case. To these distinguished names I can now add another, that of Dr. Darby, of South Carolina.

Péan's wonderful success is due wholly to improved methods of operating.

Notwithstanding the eloquent pleading of Storer for this operation a few years ago, the Profession remained unmoved; and he left the question precisely where he found it. But the deeds of Péan, more potent than words, will surely give it a new impetus, and I have no doubt that it will before long be recognized by the Profession as justifiable, and by them placed on a level with the great operation of ovariotomy.

With the teachings of Meadows and Thomas on one side, and of Koeberle and Péan on the other, I think we may well be satisfied. For, with improved methods of removing intra-uterine fibroids by enucleation, and with improved methods of removing extra-uterine fibroids by gastrotomy, a new light is suddenly shed abroad, giving us promise of still further progress in this department of surgery.—*Monograph from the Author.*

ANALYTICAL DEPARTMENT.

"Qui e nuce nucleum esse vult, frangit nucem."—Plautus.

Chlorinated Lime as a Disinfectant.—Mr. A. W. Miller says, in the "American Journal of Pharmacy:"

Eckstein experimented for two years with the privy of his house in Vienna, which was frequented by at least one hundred persons daily. He successfully tried a great number of chemicals in various methods, with the following results:—

(1) When an aqueous solution of two pounds of iron sulphate was poured into the well, the odor of sulphhydric acid was eliminated for several hours. After this time all unpleasant odor had disappeared, but within twelve hours the effect of the deodorizer was no longer perceptible.

(2) A solution of sulphate of copper behaved in the same manner.

(3) Two pounds of iron sulphate in crystal exerted a deodorizing effect for two entire days; the same amount of copper sulphate in crystals gave analogous results.

(4) Two pounds of disinfecting powder, composed of a mixture of iron and copper sulphates with carbolated lime, acted for only two days.

(5) Sulphurous acid, in a liquid form, was found to be rapidly effective, but it proved to be very troublesome to the organs of respiration for an hour, and it was dissipated within twenty-four hours.

(6) One ounce of red carbolic acid disseminated a very unpleasant tarry odor throughout the entire house for two days; so that its true effects could not be estimated, as one fœtid odor was concealed by a still worse one.

(7) Two pounds of iron sulphate in crystals were introduced into a parchment bag and put into the cesspool. No result was observed until after two hours, and but little sulphhydric acid was eliminated. The place was thoroughly deodorized for three full days. When the parchment bag was removed it contained only a turbid, but almost inodorous, liquid.

(8) Two pounds of commercial chlorinated lime, of high test, enclosed in a parchment bag, began to deodorize within two hours after being deposited. It did not in any manner inconvenience either the respiratory or the olfactory organs, while its action extended over a period of quite nine days.

(9) Two ounces of crude permanganate of sodium, used by itself

in solution, deodorized almost instantly, but all traces of its effects had vanished after twenty-four hours. The same preparation, when enclosed in a parchment bag, was active for two days.

The above data seem to demonstrate conclusively that chlorinated lime, enclosed in a bag of parchment paper, deodorizes not only in the most effectual manner, but also for the longest period of time. This statement is confirmed by the results of numerous similar investigations which have been recently instituted in the Official Chemical Laboratory for Public Hygiene, of Dresden, Germany. Many of the so-called disinfectants were carefully studied in relation to their effects in deodorizing the liquid of manure heaps. Chlorinated lime, in conjunction with sulphuric acid, was found to be the most powerful, so that the value of this was taken as the standard, being numerically expressed by 100. The results were tabulated as follows:

Chlorinated lime, with sulphuric acid	= 100
Two parts chlorinated lime, with seven parts iron sulphate	= 99
Calcium sulphate, with seven parts iron sulphate	= 92
Carbolic disinfecting powder	= 85.6
Slaked lime	= 84.6
Alum	= 80.4
Iron sulphate	= 76.7
Chloralum sulphate	= 74
Magnesium sulphate	= 57.1
Potassium permanganate, with sulphuric acid	= 51.3

The Kak-ke Disease of Japan.—The Boston "Medical and Surgical Journal," says: We have received a late number of the "Japan Mail," containing an interesting description, by Dr. Hoffman, of a species of endemic disease, known as kak-ke, peculiar to the Island of Japan. The malady is said to possess considerable similarity to the Indian disease called beri-beri, and which by the Dutch, and subsequently by other foreigners, was erroneously supposed to be identical with it. It makes its appearance regularly at the beginning of spring, first attacking only such persons as have suffered from it in preceding years, and on the approach of warm weather assails, also, those whom it had hitherto spared. The characteristic symptoms of the disease appear to be pain and stiffness in the lower extremities, accompanied by a diminution of sensibility and cutaneous œdema, beginning with the ankle joints and rapidly extending to the knees. In addition to these symptoms, a simultaneous occurrence of violent palpitation of the heart, to which is occasionally superadded endocarditis. The patient shows a distaste for all pursuits, and more especially those which demand exercise of intellect, while a general sense of drowsy weakness is observable. With the approach of cooler weather, the symptoms tend to disappear, even without treatment, and a slight weakness, often accompanied by anæmia, is all that now remains of the complaint; and this slight symptom disappears, also, in the course of the winter. In the more severe cases, however, the cure is deferred and often incomplete, insensibility and palsy of different degrees remaining, occasionally even to the extent of complete paralysis of the upper extremeties, with atrophy of the parts.

Hæmorrhage as Critical in Typhoid Fever.—At a meeting of the Rush Medical Society, reported in the Indianapolis "Journal of Medicine," Dr. Pollett wished to know the experience of members in reference to the salutary curative effect of hæmorrhage from the bowels. Whether, if they got well at all they did not do so rapidly and permanently. His experience was to this effect. He did not look upon hæmorrhage with that degree of alarm he once did. Is now disposed to regard it as critical, and even in some cases curative. It was an effort of nature to get rid of morbid material. Is almost driven to the conclusion that hæmorrhage is not a bad symptom, but, must confess, often a very frightful one. In reply to a question, what is the pathology of typhoid fever? he said, "It is emphatically a disease of the bowels, involving the glands of Peyer. If brain symptoms set up, it is a metastatis; so as to the other viscera and organs of the body. Typhoid fever is also a blood poison, and Nature acts upon some method by which to rid herself of the materies morbi." Hence the disposition to hæmorhage and diarrhœa. As a general rule, when hæmorrhage sets up, delirium ceases. The thing to do in these cases is to stimulate; give anodynes, astringents and sustaining remedies. If you can save them from shock and exhaustion, they will certainly recover. I am not enough of an adept to foretell when the hæmorrhage is about to begin, but, when I find my patient restless, uneasy, and complaining of a sense of exhaustion, although otherwise in a seemingly good condition, I suspect that hæmorrhage is about to ensue. In such conditions the immediate exhibition of stimulants is required. Another precaution is, not to allow patients, upon any account, to assume the erect posture. Nearly all cases of bleeding come on when the patients are upon the chamber, rarely ever when the bed-pan is used. In fact, it is a good plan throughout the progress of a case of typhoyd fever to have the bed-pan used instead of the ordinary vessel. We can not be too careful in our directions in these seemingly small matters.

Historical Note on Extirpation of the Kidney.—In the "Lyon Medical" M. Marduel gives a paper on the subject of Extirpation of the kidney, from which we learn that Zambeccarius first practiced extirpation of the kidneys on animals. Blanchard, in 1696, thought it might be possible to practice it on man. Claude Bernard, Rayer, Provost and Dumas extirpated the kidney several times from dogs; and when only one was removed the animal survived. Rayer maintained that though it were possible to extirpate a healthy kidney from an animal, yet it would be folly to attempt the operation in man affected with calculus or a suppurating kidney.

Since 1869, the operation of extirpation has been performed three times on man. The first was performed by Simon, of Heidelberg, on a woman, aged 26, who had previously undergone ovariotomy, and had consecutive uretho abdominal fistula, from which the urine from the left kidney escaped. This fistula was attempted to be rectified in a variety of ways, but none of them succeeded. The kidney was extirpated. Six weeks after the operation, the patient was able to sit up in bed, and has since done well, making a complete and rapid recovery.

The second case, that of a woman 33 years of age, five months advanced in pregnancy, and having a displaced painful kidney, which prevented her from rest, and which was ultimately extirpated by Dr. Gilmore (an account of which may be found in the "American Journal of Obstetrics"). The woman not only recovered, but carried her child till its full time. The third case, by Burns, was that of a soldier who was wounded by a bullet in the left kidney, which established a reno-lumbar fistula, followed by renal suppuration and purulent infection. As a last hope, the kidney was extirpated, but the man died soon after. The results show the practicability of extirpation of the kidney, especially in cases where the organ itself is healthy.

The Advantages of the Galvano-Cautery.—Dr. Y. R. Le Monnier, of New Orleans, sums up the advantages of the galvano-cautery, in the New Orleans "Medical and Surgical Journal," in the following words: The principal advantages of this method are the following—

1. No hæmorrhage. As the platina wire passes through the tissues it cauterizes and produces the coagulation of the blood and an obliteration of the vessels. It is not that all operations of this kind are exempt from hæmorrhage; for if we use a thin wire it will act more like the knife, and its passage is too rapid for the hæmostatic effect to take place. With a coarser wire, gently and slowly tightened, the cauterization will extend to quite a depth, and all effusion of blood is surely stopped.

2. The rapidity and energy of its action, and we might add the absence of all well-marked pain. These results are due to the instantaneous mortification of the tissues under the influence of an intense heat.

3. The exact limitation of the effects of the operation, and thereby the absence of an acute inflammatory reäction, either

local or general. We have never to this day heard of an accident happening subsequent to the galvano-caustic, and to take pyæmia as an example, we have seen many patients die in the hospitals of Paris of this disease after the use of the knife.

4. The possibility of burning and of cutting deeply-seated parts which are absolutely inaccessible to the cutting instrument, or can not be reached without danger. But, to be able thus to manage electricity in the very depths of cavities, a special instrument was needed, the galvanic porte-ligature or cutting loop.

5. The production of healthy granulations, same as with the actual cautery.

6. Finally, to use the words of Middledorpf, "galvanism, substituted for the actual cautery, has the advantage of not offering to the sight the spectacle of a forge of cyclops fired up by a groaning bellows, from whence the surgeon, the red hot iron in his hand, precipitates himself on his frightened patient."

7. The instruments not in communication with the battery are introduced in a cold state; once in place, a pressure with the finger is sufficient to establish the current, which brings them to a most intense heat; in an instant, and at will, the current is interrupted, the instrument immediately cools off and is withdrawn.

Relative Longevity of Jews and Christians.—The following statistics, though not new, deserve publication. We take them from an article by Dr. J. S. Hough, in New York "Medical Record:"

M. Mayer, in his treatise* relative to the duration of life in the Jewish population compared with that of the Christian, found the following facts connected with the statistics of Furth for a period of ten years: Jews, 37 years; Christians, 26 years; excess in favor of Jews, 11 years.

From one to five years old, Jews lose 10 in 100, Christians,

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* Ueber die Lebenserwartung der Israelitischon Benölkerung gegenüber der Christlichen. "Deutche Zeithr.f.d. Statistik," t. xxi, p. i, 1863.

14 in 100. This difference holds to the 60th year, but then the difference changes in favor of the Christians. From 60 to 70 years, Jews lose 9.8 in 100, and Christians 12 in 100; 70 to 80, 8.9 in 100 Christians, 7 in 100 Jews; 80 to 90 years, 2.4 Christians in 100, and 8.1 Jews. This result, he says, is not astonishing, since of those who pass 60 years, more individuals of the Jewish race than Christians are living. Among the Christians one half die before 30 years, while one half the Jews live to 50 years. In France Dr. Neufville has reached analogous results. The mean general mortality is 37 years, 7 months; Christians, mean general mortality is 36 years, 11 months; Jews, mean general mortality is 48 years, 9 months.

In the first five years of life, of 100 children of Jews, 12.9 die; of 100 children of Christians, 24.1 die. Among 100 Christians, 38.1 attain to 50 years, and 54 among Jews. 13.4 Christians attain to 70 years, while 27.4 Jews attain the same age. One quarter of Christians attain only 6 years, 11 months; and one quarter of all Jews, 28 years, 3 months. One half of all Christians die at 36 years; Jews, 53 years, 1 month. There is only one quarter of the Christian population of Frankfort living, above 59 years, 10 months, while among Jews one quarter pass 70 years. Dr. Neufville explains these differences by the following circumstances. There are no proletaries among the Jews, while one tenth of the Christians live on public charity. Most Jews are in commerce or letters, very few are laborers. Among 100 commercials above 20 years of age, the one half of the Christians succumb before 57 years; one half of Jews before 67 years only.

It is in this longevity that the Jews increase more than the Christians, and not in marriages and births. In Prussia the Jewish population (1822-1840) increased 34½ per cent., while in the same lapse of time Christians augmented only 28 per cent., increase by emigration being about the same. There was one birth to every 28 Jews, one to every 25 Christians; one marriage among every 139 Jews, one among every 112 Christians; one death among 40 Jews, one in every 34 Christians.

CLINICAL RECORDS.

"*Ex principiis, nascitur probabilitas: ex factis, vero veritas.*"

ART. I.—CASES OF MENINGITIS IN TEXAS.

The following is a report of six cases of Acute Spinal Meningitis, so-called:

CASE I.—Miss Moss, aged 17 years, attending school, was attacked in the school-room with what she thought a chill, attended with a violent pain in her head, extending down the spinal column; very little fever; same night attended a party and sat up late; next day returned to school, had another similar attack, though more severe, lasting until night. On next morning had a third attack of rigors and pain in her head, neck, and back; in a few hours unconscious; vomited several times.

My first visit, 10 o'clock Saturday night, found patient unconscious; extremities cold; countenance cadaverous; pulse very feeble; 110° rather quick and very easily compressed; in fact, the weight of my finger would cut the circulation entirely off. Head and heels almost meeting with each recurring pain. Her pupils would contract and dilate with each return of spasm. (May I call it.) This young lady died at 12 noon the next day. She became more conscious under treatment before she died. There was no undue heat about her head; no demand for depletion. I tried mercury, stimulants, hot fomentations, sinapisms, turpentine externally, blisters, and active counter-irritants. My treatment was unavailing, in short, nothing I did was of any help to my patient. Quinine, per enema, increased the opisthotonos. At one time her eyes assumed a glistening brightness; this lasted an hour or two a short time before death.

CASE II.—Early in the morning (Sunday), an infant at the same house, five months old, had symptoms of a chill, and was quite fretful, refusing its mother's breast; often crying as though in pain; a slight reäction; more warmth of extremities succeeded the chill symptoms. In a few hours the eyes put on a sparkling appearance and the head commenced to draw backwards with slight spasm. I prescribed warm baths with mustard; hot turpentine to the spinal column; blister to the neck; calomel, 2 grs.; ipecac, ⅛ gr.; paregoric, 4 gtt.; this dose at 2½ hours interval; 3 doses at night, castor oil and 3 drops of spirits of turpentine, and early on the following morning quinine per enema.

On my next visit (Sunday), I found my patient much worse; lips dry; tongue furred; pulse quick; retraction of the head much worse; child can not lie on his back; constant tossing, moaning, and occasionally screaming out, and with the scream an almost complete opisthotonos.

. The calomel continued with valerianate morphia, stimulation, embrocations to the spine; bromide potassium, quinine, gelseminum, aconite, veratrium, belladonna ointment to the spine; all seemed to aggravate the case. Eyes upturned, nose pinched, an occasional frown on his face, somewhat flushed, yet no undue heat; feet rather cool with slight spasms; turning points of his toes together; nostrils dry; ears same; no secretion from either; mouth and throat dry, and tongue red at tip and edges. This case died Tuesday night. This child lived about 60 hours. [*Query.*—Was this meningitis?]

Case III.—A sprightly boy, over three years old, of the same family, was attacked on Sunday, about night (day first case died), with malaise and a hurried respiration; pulse quick, but easily controlled in the circulation by my finger; had choking fits and symptoms of worms; prescribed calomel and ipecac in broken doses with vermifuge. Monday continued calomel, and ipecac, and vermifuge, at three hours interval, and directed oil and turpentine at night; patient would start in fright and scream out, complaining of his head, stomach, and bowels. Tuesday morning, early, had two operations, and passed with those two operations twenty-three large, round worms, lumbrici, some of them one foot long. I hoped I had this case subdued on expulsion of the worms; not so; in less than one hour his face flushed, his eyes sparkled, and his head commenced retracting with an occasional opisthotonos; tongue heavily furred; lips dry; nostrils same; breathing, at times, normal, again hurried. In this case, had Dr. Bass in consultation, and vigorous treatment; prescribed mercury, quinine, morphia, bromide potassium, diaphoretics, with several of the most potent sedatives; liquor potassæ arsenitis, blisters, sinapisms, warm applications; hot turpentine to the spine and bowels; warm oil in his ears; enemas of quinine and mucilaginous drinks, all seemed to aggravate the symptoms; head permanently drawn back so as to obstruct swallowing. This patient died in five days.

Case IV.—At the same house, where three had died, a well-grown girl, aged 11 years, on her return home from the burial of her aunt, (the young lady who died the day previous), took a chill, (this, Monday, evening). I prescribed calomel (podophylin and Dover's), two doses. Tuesday morning oil and turpentine, to be followed with two or three doses of quinine. On my visit I found her with eyes, nose, mouth, and lips all dry; eyes injected, wandering delirium; at times rational, and complains of pains all over her body, but worse in her head, neck, and spine. In consultation with Dr. Bass, we continued mercury to a light ptyalism; also, quinine per mouth and rectum; urine scant and high colored; tongue and pulse indicating typhoid; purple flush on first one cheek and then the other; circumscribed, but not on both cheeks at once; slight cough; head prone backwards; frequent starts as though frightened. All the known remedies were used; mercury, baths, quinine, bromide potassium, sinapisms, blisters, especially to her spine; turpentine, cantharides, tart. antimony and warming plaster. I called in Dr. Felder, but got nothing new in the case. After the first ten days a slight hæmorrhage from her nose relieved the delirium. It is now over twelve months since this case was attacked, and this lovely little girl is paralyzed and helpless.

Her mind is clear, appetite good, bowels regular, but can not walk or even stand alone, nor get up when she is down; or even turn over in bed; she is as helpless as an infant. Her skin and flesh is as soft and delicate as a child of a few months old; she is growing fast, and to look at her you would suppose she was well. Strychnine, iron, quinine, electricity, shower-baths, mercurial, acids; in short, all the remedies known to the Profession, have been tried in vain, and I fear she is an incurable invalid for all her time on earth.

Case V.—This case was six miles distant from the first four. I determined to beat meningitis, and kill or cure the case before the disease could.

This case was ushered in with a cold stage, and followed with intense pain in her head and neck, (cervical column), the pain extending to her sacrum.

A colored female, aged 14 years, had enjoyed good health and lived well. When I got in hearing of the house I heard her screams, was rational; at times, again, she seemed to suffer great anguish. Head drawn back, eyes sparkling, bright, pupils dilated, then again contracted; pulse quick, but feeble, easily compressed; nose, mouth, eyes and ears dry; nostrils pinched, countenance cadaverous, extremities rather cool. I at once determined a different practice, for in this condition the patient must die soon. I ordered a large pot full of horsemint tea (monarda punctata) made, and placed the patient across the bed, so as to expose the upper half of her body. Supported there by assistants, I had the pot (a big one) placed near the bed on the floor, so that by the aid of blankets a steam vapor would reach her entire upper half, except her face. I kept her in this position one hour, during which time she became quiet and went to sleep. I prescribed calomel, 10 grs.; sulph. morph., ¼ gr.; to be taken at 2 hours interval, four doses. This gave a quiet night's rest. On the following morning, quinine, 5 grs.; sulph. morph., ⅛ gr.; three doses. I promised to see the case by noon. I found her somewhat worse; eyes injected, head drawn back more; delirium and occasional screaming; nostrils dry;

also lips, mouth, and eyes; tongue furred. I repeated vapor-bath, calomel, and morphia; three doses; also, tinct. aconite and opii, six drops per dose for each ear; three doses per night. Next morning quinine and valerianate morphia; three doses at six hours interval, and steam-bath earlier to anticipate return of pain. After the vapor-bath she could move her head in any direction she chose, which she could not do during the paroxysm of pain. On my third visit I found my patient quite calm; pulse soft, with a mild perspiration, and a free discharge from her nostrils; tongue clean. I directed quinine continued in the morning for several days.

Case VI.—A boy, aged 13 years, of good constitution, after being exposed to a cold rain, had a chill, followed with intense pain in the head and upper spine, without fever or perspiration. In this the head was drawn back, as though the cervical column was shortened; at times, when free from pain, the muscles would relax, and his head would incline to his breast. This boy had taken a dose of patent liver pills, also one dose quinine. On my first visit I directed a steam vapor-bath, and for convenience used pine tops boiled in a large pot. The patient was placed on the bed, as in Case 5, the entire upper half of his body, except his face, being exposed to a hot vapor bath by covering him with thick blankets. In fifty minutes the patient expressed himself as feeling much better. I prescribed calomel, 8 grs.; sulph. morph., ¼ gr., and six drops each, tinct. aconite and opii poured in either ear, first warmed. Three doses for each ear during the night; next morning quinine 8 grs.; valerianate morph., ⅛ gr.; three doses at two hours interval. At 11 A. M. the vapor-bath as before. The pain returned in a milder form, but no rigor. The ear treatment was continued through evening and night. Calomel, six grs.; acetate morphia, ⅙ gr.; four doses during the night; stimulating liniment to the spinal column, and his face steamed from a common coffee-pot with strong coffee and vinegar mixed, which started a flow of mucus from his nostrils; also, an alkaline bath to his hands and feet; this procured a sound nights sleep. On the following morning quinine, 15 grs.; tinct. opii, 20 gtts. per rectum, to be repeated in four hours. In the afternoon the vapor-bath and hydrarg. cum. creta, 4 grs.; acetate morphia, ⅛ gr.; three doses per night; treatment to his ears the same; also, the bath to his feet and hands, and vapor-bath to his nostrils. On my morning visit I found my patient much better; nostrils discharging a muco-pus secretion; freely continued quinine and morphia as I did yesterday forenoon; also, oil and turpentine for his bowels; liniment to his spine, foot-bath, also vapor-bath to the face. This case recovered in four weeks, leaving no bad trace in his system.

During the winter of 1872 and '73, several cases died at Longview and Marshall, Texas, with this disease.

In my opinion, the treatment of Cases 5 and 6 would have cured Cases 2, 3, and 4; and, perhaps, mitigated my first case.

I have had a few mild cases in wnich I used the face-bath to advantage, and until further convinced, will treat meningitis as I did in Cases 5 and 6.

ORIGINAL CORRESPONDENCE.

"Sit mihi Fas scribere audita."

INDEPENDENCE, TATE CO., MISS., March, 1874.

Dr. E. S. Gaillard:

Dear Sir,—I noticed in the March number of your Journal, the record of a case of "Puerperal Eclampsia," treated by Dr. Benj. Dabney, of McComb City, Miss., upon which I propose to comment a little, not for the purpose of criticism, but to call the attention of my brother practitoners to an old but very potent remedy, now become unfashionable, and I am disposed to think too frequently neglected to the detriment of patients, especially such as those recorded by Dr. Dabney. I allude to venæsection. But permit me here to record my confidence from clinical observation, in the potency of hydrate of chloral in eclampsia as an adjuvant to venæsection. But to Dr. Dabney's case. He says " when called to this patient, found her in labor and suffering from convulsion," "found her much congested about the face, head hot, pulse strong, full and bounding. Convulsions returned every fifteen minutes, lasting one to two minutes; during the intervals, breathing very labored, totally unconcious," etc. Now here are the very symptoms that in my opinion called for a prompt and copious blood-letting, and from my own experience in such cases, I feel confident that one such bleeding, immediately followed by ʒi. hydrate chloral per rectum, would have very promptly arrested the convulsions, and that the Doctor's after-treatment, except, probably his purgative, might have been rendered unnecessary. As corroborative of these views, I will record two cases that have fallen under my observation, one of them quite recently.

Case I.—Was called up hurriedly, at 12 o'clock P. M., February 19th '74, to visit Mrs. R., who, I was told, was having spasms. Being but a few hundred yards from my residence, I was soon at her bedside. Found she had one pretty severe convulsion, pulse moderately full and tense; while preparing to bleed her, another severe convulsion came on, which lasted about two minutes. As soon as spasm subsided, I bled her about ℥xx.; when her pulse softened; tied up her arm, and immediately administrated ʒi. chloral by enema. She had no more convulsions, but slept quietly until morning. Opened bowels next morning with sul. magnesia. I should have stated at the time of her attack she was near the commencement of eight months' pergnancy. After arrest of convulsions, she went two weeks, when labor came on, which was natural and easy, and of about four hours' duration. I will state, also, that Mrs. R., is naturally of feeble and delicate constitution, but her health had been better this pregnancy, which was her fourth, than any previous, and her system had become somewhat plethoric. I will add, that upon testing her urine with nitric acid, the morning after convulsions, found it pretty heavily loaded with albumen.

Case II.—Was called to Mrs. S., February, 1871. First pregnancy; about 22 years of age; had always been very healthy, now robust, and of full habit. Had been complaining several days of headache, but no marked symptoms of active termination to head. Saw her at 9 o'clock P. M., complaining of headache, with nervousness and inability to sleep. Had taken sul. magnesia in morning, which had moved bowels freely; had eaten little during day, but had previously eaten heartily.

Thinking that an anodyne might quiet her for the night, but with some doubt as to its propriety, I gave her a quarter grain sul. morphia, and went to bed. Was soon aroused by her husband rushing into my room, saying his wife was dying, hurried into her room and found her in a terrible convulsion. As soon as spasm pased off, bled her near ℥x till her pulse flagged. And here let me say, I always bleed until I impress the pulse without regard to quantity, in other words, I bleed for effect.

After the bleeding she slept quietly about an hour and awoke, saying she had no headache and felt much better. Having no chloral with me, I put her upon brom. potassium, one scruple every three hours for 24 hours, afterward ter die for several days.

Wilmington, N. C., 1874.

Dr. E. S. Gaillard:

Dear Doctor,—I copy an article from the "Medical Times and Gazette" (London) which may have escaped you, and which you would like to see and publish.

[To the Editor Medical Times and Gazette.]

"*Hippocrates in a Clothes Basket.*—Sir, such of your readers as are familiar with the romance and fiction of the centuries preceding our own, will be aware how troubadors, novelists and dramatists, including the "Divine William" himself, utterly disregarded all verities of time, place and person, and were indifferent whether they spoke of a seaport in Bavaria, or of the presence of Alexander the Great at a tournament of Christian knights. The moral, such as it was, was their chief care, and in order "to point the moral and adorn their tale," they took the most preposterous liberties with the names and characters of historical personages. Now it happens, unluckily, that in an age of open profligacy the favorite moral was, that no man is saint or sage below the girdle, and to enforce this maxim, it was a common practice to represent saint and sages from King Solomon downwards, as yielding to temptation like ordinary mortals. For instance, there is a "Lay of Aristotle," said to be derived from the Arabians, and reproduced by mediæval poets (as Gower, in his "Confessio Amantis"), in which the sage is represented as so befooled by one of the mistresses of Alexander the Great, that he allowed her to harness him with an ass' saddle and to ride on his back, whilst he went on all-fours. Nor did these irreverent jokes spare the father of physic, for there is a "Lay of Hippocrates" relating how this eminent physician, coming to Rome in the time of (!) the Emperor Augustus, found the whole city in mourning on account of the death of the Emperor's nephew. But he restores the youth to life by putting the juice of certain plants in his mouth; whereupon he is looked upon as more than mortal, and treated with the highest reverence. But alas! he has the one vulnerable point of nature. He makes overtures to one of the Emperor's mistresses, who promises that he shall be admitted to her apartments. But the frail fair one is at the top of a high tower, the gate of which is zealously guarded. So it is agreed that he shall be hoist up in a clothes-basket. He repairs at night to the foot of the tower, finds the basket, gets in, and is pulled up. But alas! the basket is raised only half way by the perfidious woman, and there the sage is left hanging, to the derision of the multitudes who come to gloat over the frailties of an old philosopher. The motive of the story is as vile as the story is false, but it shows the manners of the times when it was popular. I am, etc., DELTA.

Why need Beecher think it a hardship to be scandalized, when the master of us all, the great Hippocrates, can not escape calumny after the lapse of centuries.

Wood.

Anasarca of Malarial Origin.

Little Rock, Ark., 1874.

Dr. E. S. Gillard:

Dear Sir,—I have recently had under observation several cases, illustrating in a marked degree the occurrence of dropsy of cellular tissue, as a consequence of protracted-malarial influence. Owing to the great influx of unacclimated individuals amongst us, drawn here by the several railroads that are being constructed in our State, we have had an unusual amount of periodical diseases to contend with.

The sufferers are most commonly laborers, and they usually present all the symptoms that go to make up the malarial cachexia; after disposing of any periodicity in the case, for which purpose the ordinary antiperiodics usually suffice, and a continuance of some of the preparations of cinchona through the treatment, will not only be found beneficial but necessary, I have found no combination of remedies that answers so well as the apocynum cannabinum (Indian hemp), iodide potass. and iron. The following will be found a very convenient formular:

℞—Potass. Iodidi, ʒiv.;
Ext. Apocyni;
Cannab. Fluid, ℥i.;
Elixir Gentian and Iron, ℥iii. M.

Sig. Teaspoonful thrice daily.

In some instances the above proves emeto-cathartic, depending upon the amount of Indian hemp being too great, the dose under such circumstances should be diminished. Patients in this condition, notwithstanding their apparently reduced and anæmic state, bear the action of elaterium remarkably well, and its administration on every alternate or third day is not only beneficial, but is found to be one of our most reliable and efficient agents.

John R. Dale, M. D.

PROCEEDINGS OF SOCIETIES.

"Etsi non prosunt singula, juncta juvant."

CENTRAL KENTUCKY MEDICAL ASSOCIATION.

This Association met in Standford on Wednesday, October 14, at the usual hour, the Vice-President, Dr. Price, of Harrodsburg, in the chair.

The debate was opened by Dr. Ed. Alcorn, of Hustonville, with a paper on Dysentery—the question for the day—which was followed by an interesting discussion.

Dr. Dunlap, of Danville, read a report of a case of Rupture of the Uterus during Labor, with recovery.

Dr. Alcorn read a report of two cases of Cerebro-Spinal Meningitis.

Dr. McMurtry, of Danville, read an essay on the Fœtal Pulse as a means of Diagnosis.

Dr. Cowan, of Danville, exhibited Frey's Modification of Avelings' Transfusion Apparatus; Van Buren's Instrument for Ligating Internal Hæmorrhoids; Bodenhamer's Pile Clamp; Squire's New Catheter, etc., etc.

Dr. S. L. S. Smith, U. S. A., exhibited a large collection of remedies from the house of Arthur, Peter & Co., for which the thanks of the Association were voted him.

Dr. Charles Taylor, of Danville, presented the subject of Exstrophia of the Bladder, reported by him at the last meeting.

Dr. McMurtry exhibited Van Buren & Keye's work on Genito-Urinary Diseases, with Syphilis; and for Dr. Smith, U. S. A., an Axillary, a Pencil-case Thermometer, and several varieties of Hypodermic Syringes.

There was a large attendance, and the proceedings were throughout unusually interesting; the display of instruments and remedies being especially fine. After a vote of thanks to the Lincoln County Medical Society for a handsome entertainment and other hospitalities, and to the Good Templars for the use of their Hall, the Association adjourned, at 4 o'clock P. M., to meet at Danville, on the third Wednesday in January next, when the debate will be opened by Dr. Lapsley, of Mercer county, on Acute Pneumonia.

ARKANSAS STATE MEDICAL ASSOCIATION.

The following are the names of the medical gentlemen who withdrew from the above Association: Drs. A. L. Breysacher, Little Rock; J. M. Holcombe, Pine Bluff; R. G. Jennings, Little Rock; D. A. Linthicum, Helena; P. O. Hooper, J. R. Lenow, Little Rock; F. N. Burke, Helena; O. A. Hobson, Geo. W. Lawrence, Hot Springs; C. M. Taylor, South Bend; W. M. Lawrence, Batesville; J. A. Stinson, Jackson county; P. R. Ford, Phillips county; E. A. Shippey, P. H. Ellsworth, Hot Springs; E. R. Duval, Fort Smith; P. T. Mask, E. V. Denell, Geo. C. Hart, Little Rock; E. T. Dale, Texarkana.

LINTON DISTRICT MEDICAL SOCIETY.

At the last meeting of the Linton District Medical Society of Missouri, the following officers were elected for the ensuing year: H. H. Middelkamp, M. D., of Warrenton, President; A. W. McAlister, M. D., of Columbia, and S. B. Ayres, M. D., of Louisiana, Vice-Presidents; J. W. Lanius, M. D., of Mexico, Secretary, and William S. Hutt, M. D., of Troy, Treasurer, Eleven members were appointed to furnish papers for next meeting, which is to be held at Fulton, Mo., November 10, 1874.

Linton District Medical Society was the first of the kind ever organized in this State—there are six now. It was named in memory of the late Dr. M. L. Linton, of St. Louis.

The third semi-annual session of this Society will be held at Fulton, Mo., on Tuesday, November 4, 1874, beginning at 3 o'clock, P. M., and continue in session two days.

J. W. LANIUS, M. D., Secretary.

CHEMICAL AND PHARMACEUTICAL.

"Diruit, ædificat, mutat."---Hor.

Two New Drugs. By J. S. Unzicker, M. D.—We learn from the "Zeitschrift des allgemeinen Oestr. Apotheker-Vereins," that two plants, which are natives of the Phillipine Islands, have attracted some attention at the Industrial Exposition at Vienna. One of these is the Echises scholaris, an Apocynaceous plant; the other, the Garcinia Mangostana, one of the Guttiferæ.

The Echises is an abundant tree in the province of Rataugar, in the island of Luzen, the bark of which has long been used by the natives, under the name of Dita, as a remedy for all kinds of fever. G. Gruppe, an apothecary in Manilla, examined the bark, and he obtained from it, after repeated analysis, a very hygroscopic bitter principle, to which he gave the name of Ditain. Prof. Dr. Miguel Zina, a Spaniard, and chief physician of the province of Manilla, experimented with it in the hospital under his care, and found that ditain is not only a perfect substitute for quinine, but also in its use the frequently unpleasant after-effects of quinine are avoided. It is given in the same doses as quinine, with a perfect certainty in its effects, and can be procured at about half the price of quinine.

Thapsia Plaster. By J. S. Unzicker, M. D.—This plaster is made of the Thapsia Garganica, which grows in abundance on the plateaux of Algeria, and has been recently introduced into therapeutics, and will no doubt render important services in the art of healing. "It owes its irritating properties to a peculiar resin contained in its roots, rendering it a powerful derivative, whose action, on account of its form and consistence, may be graduated at will and limited to the very spot on which the physician wishes to obtain the effect. This result is impossible with croton oil, which, on account of its fluid state, spreads and acts on a larger space than desirable."

From the simplicity of its use it will no doubt gain favor with the Profession, and be adopted in preference to croton oil or tartar emetic ointment, over which it has great advantages.

Its revulsive action manifests itself by miliary eruption more or less abundant, according to the time it has been applied. When the eruption disappears in a few days, the plaster may be reäpplied, and thus a counter-irritation kept up for any desirable length of time.

Danger of Aniline Red for Coloring Hair-Oils.—In our last issue we called attention to the danger attending the use of aniline red for coloring syrups, ice-cream, etc. We have lately heard of a danger attending these colors in an entirely different direction. Many hair-oils are now colored with aniline red instead of the long-used anchusa, which answers every purpose, and should be continued; at least, if a change is made, something less likely to produce trouble than aniline red should be substituted.—*The Laboratory.*

Sausages Colored by Aniline.—Aniline red is used to impart to sausages a fresh and healthy appearance. It can easily be detected by the use of alcohol or ether, either of which substances dissolves aniline but not blood. The use of aniline red is severely reprehensible, not only from the fact that it is known to have caused the illness of entire families who have eaten meat colored with it, but also because, from its mode of preparation, it frequently contains arsenic, and must, therefore, act as poison.—*Amer. Chemist.*

Compositions of Cosmetics, Hair-dyes, etc.—Professor J. M. Merrick has made analyses for the Boston Board of Health of the following substances, and the results have recently been published in the report of the Board.

Hair Dyes.—The following shows, at one view, the amounts of lead contained in the various preparations, No. 1 excepted: No. 2, Chevalier's Life for the hair (fluid) grains per fluid oz., .21; No. 3, Ayer's Hair Vigor, grains per fluid oz., 2.38; No. 4, Phalon's Vitalia, grains per fluid oz., 13.89; No. 5, Ring's Ambrosia, grains per fluid oz., 5.09; No. 6, Mrs. Allen's Restorer, grains per fluid oz., 5.41; No. 7, Hall's Renewer, grains per fluid oz., 5.05; No. 8, M. Washington Restorer, grains per fluid oz., 9.20; No. 9, Singer's Restorer, grains per fluid oz., 11.30; No. 10, Gray's Restorer, grains per fluid oz., 3.35.

Cosmetics, Enamels, Powders, etc.—No. 1. Phalon's Paphion Lotion, or Floral Beautifier—Milk of almonds, chalk and water; no lead.

No. 2. Piesse and Lubin's Pestachio Nut Skin and Complexion Powder—Finely divided and perfumed silicate of magnesia or talc.

No. 3. Well's Lily White (powdered)—Finely divided and perfumed chalk, some carbonate of magnesia, and a little silica.

No. 4. Cream Imperatrice—Sixty-six parts oxycarbonate of zinc and thirty-three of fat or grease, highly scented.

No. 5. Hagan's Magnolia Balm—66.50 grains oxide of zinc for each ounce fluid.

No. 6. Oriental Cream, or Magical Beautifier—31.50 grains subchloride of mercury to each fluid ounce.

No. 7. Perry's Moth and Freckle Lotion—Contains mercury, lead, zinc, and bismuth.

No. 8. Burnett's Kalliston—Free from metals.

No. 9. Enamel, for the complexion—Has a sediment of oxide of zinc.

No. 11. Email blanc de Paris—Free from metals.

Perry's Moth and Freckle Lotion contains three virulent poisons in considerble quantity.—*Ex.*

Gum Arabic Mucilage.—This preparation, when made according to the pharmacopœia, does not keep very well in warm weather, and Messrs. Archer & Co., in the "American Journal of Pharmacy," recommend that it be made with tolu water. The mucilage thus prepared has a faint odor of tolu, and is, in appearance, similar to the officinal. The tolu water is prepared by rubbing two fluid drachms of a saturated tincture of tolu with four drachms of magnesium carbonate, and two pints of water and filtering. The tolu is supposed to prevent the mucilage from changing, upon the same principle that benzoin obviates rancidity in fats.

A Terrible Poison.—At a recent meeting of the Academy, H. St. Claire Deville, a distinguished French chemist, offered to the gentlemen present a tight vial containing about fifteen pounds of osmium, the most deadly poison known. In a short explanation, M. Deville said that twenty pounds of the metal would be sufficient to poison the entire population of the world. One-thousandth part of a grain of osmic acid, set free in a volume of air of one hundred cubic yards, would possess such a deadly influence that all the persons respiring this air would be nearly killed. Osmic acid is so much the more dangerous that no counter-poison is known against it.—*Amer. Gas-Light Journal.*

Formula for Tasteless Mixture of Cod-Liver Oil.—℞. Ol. Morrhuæ, ʒij.; Spts. Lavend. Comp., ʒi.; Spts. Vini Gallici, ʒi. M.—*Ex.*

Almost a Specific in Dysentery.—Pil. Hydrarg., grs. xij.; Pulv. Ipecac, grs. xij.; Gelsemini, grs. ij. M. Divide in twelve pills. Give one every three hours until the effect of the gelseminum is manifest in debility of the eyelids, and then discontinue. The treatment seldom fails to arrest at once the violence of the disease.—*Ex.*

Lotion for Fetid Feet.—Permanganate of potash, fifteen parts; distilled water, one thousand parts. The feet are to be washed twice a day with the lotion, then to be carefully dried and powdered with potato starch or lycopodium.—*Union Medicale.*

To Check Vomiting from Cough.—Consumptives and others suffering from paroxysms of cough frequently vomit their food in such paroxysms. Dr. Woiliez recommends swabbing the pharynx, before eating, with a concentrated solution of bromide of potassium: ℞—Pot. Brom., ʒij.; Aquæ Distil., ʒiv.; warning the patient not to cough for a few minutes after the application. The same treatment is recommended for the vomiting of pregnancy. It is said to be very successful.—*Missouri Clinical Record.*

Sinapisms.—Some of those who noticed the recipe copied in the October number of "New Remedies," of last year, may be interested in the following from an Elmira paper:

"If you want a mustard plaster and don't want a mustard blister, please observe this piece of advice: Don't mix your mustard with the white of an egg—don't do it—for if you do, language will fail you—fury will seize you, and you will discover upon examination that that embryotic chicken mixed with a little mustard had fire enough for a full-grown game rooster. No, no; stir up that mustard with anything else—brine, vinegar, alcohol, gunpowder, or even nitro-glycerin, but shun the white of an egg as a mad-dog would a pail of water. Yes, we know we told a different story some time since. We believed it then; we thought it a valuable contribution to the pharmaceutical knowledge of the country, and as such we wanted our readers to have the benefit of it. They have, and we don't overstate the case at all when we observe that one or two of them consider it altogether too much of a benefit. Why, the fact is, that mustard and the white of an egg mixed together and left alone will generate heat enough to kindle a small fire. Indeed, we should not be surprised if a careful analysis of a white heat would discover that mustard and eggs were the principal constituent parts.

"A friend of ours felt the need of a mustard plaster, and we had just printed that if the mustard was wet up with the white of an egg all the beneficial results of the application could be realized without the blistering. Of course the new process was tried. The plaster applied was about the size of your hand. The portion of the person from which the cuticle was entirely removed might have been covered with a palm-leaf fan. The fact is, it spread wider, burnt deeper, bit sharper, and altogether proved the most blistering compound ever concocted in that household.

"The first information which we published on this subject we found in an exchange. The second, which is not like unto it, was conveyed to us from an individual who had taken our first statement in confidence. The first evidently was an ebullition from the brain of some crazy doctor; the last is born of experience and is worth remembering."

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

"**Judex damnatur cum nocens absolvitur.**"

ART. I.—TRANSACTIONS OF THE STATE MEDICAL ASSOCIATION OF ALABAMA. 1874.

We greet with great pleasure, and respect too, the volume containing the Transactions of our medical brethren of Alabama. The book is gotten up in a very neat and attractive style, contains 421 pages, and has but few typographical mistakes.

Very many of the papers which go to make up the work, are of a high order of excellence, and nearly all of them bear the marks of more than usual care and thought on the part of their authors.

We have only time to notice a few of them briefly. First among these is the address of the President of the Association, Dr. George A. Ketchum, of Mobile. His subject is "*The Sanitary Needs of the People, and the Related Obligations of the Medical Profession.*" The burden of his remarks is upon the importance of public hygiene. The address, taken altogether, is dignified, thoughtful, and eloquent, and is replete with sound advice and wholesome suggestions. The next two papers are both excellent articles on the yellow fever epidemic of 1873. The first, by R. F. Michel, M. D., of Montgomery, and the second by Dr. Jerome Cochran, of Mobile. These gentlemen, while they believe that yellow fever is an *epidemic* disease, both teach also that it can be directly imported. They believe that it is an exotic disease, and teach that it is contagious, or rather its *infectious* seeds may be transported from one point to another. They both give the differential diagnosis between yellow fever and dengue, and make that diagnosis so clear that "the wayfaring man though a fool need not err therein," and need never again look upon dengue as a "modified or spurious yellow fever." They regard yellow fever as a hæmorrhagic, and dengue as an exanthematous disease. These are both excellent reports, and as such we commend them to the Profession.

The fourth article is a report on dengue, by Dr. Anderson, of Mobile. Dr. A. says: "I look upon the disease now as I did when I first became acquainted with it—viz., as essentially a malady in which the nervous system bears the brunt of the attack, and I look upon dengue as an affection of the ultimate filaments of the cerebro-spinal nerves after they enter the muscles." He further says: "As to its being allied in any way to *yellow fever*, I can see no shadow of evidence." Dr. Anderson's views in regard to the pathology of dengue are somewhat novel and peculiar, nevertheless, his is a well written, suggestive and interesting paper.

We pass over several very valuable reports which merit a more careful notice than we now have time to give them, and come next to an article on the subject of Hæmorrhagic Malarial Fever, by E. D. McDaniel, M. D., of Camden. Dr. M. prefers the name "*Icterode Hæmaturic Malarial Fever*," and he goes to some trouble to prove that the disease is not a new one. He does not look upon malaria as the only cause of the disease in question, but regards "a wide-spread epidemic influence," superadded to the malarial poison, as the probable cause. His description of the disease is clear and well expressed.

Under the head of treatment, he says, "the indications are: First, to stay the hæmorrhage; second, to correct the derangement of digestive function; third, to prevent additional paroxysms; fourth, to soothe the injured organs, and to make suitable restitution for the blood that has been lost."

To fulfill the first two indications, he relies with confidence upon calomel and the bicarbonate of soda, heat to the general cutaneous surface, mustard to the abdomen, and cold to the face. In some exceptional cases he resorts to heat, alternated with cold, applied to the general surface of the body, after the plan of the Russian bath.

To meet his third indication, he has but little confidence in quinine, and says: "If the gastric, intestinal, and cutaneous functions be continually watched and properly sustained, I believe that the immediate demand for specific anti-periodics will be by no means great or imperative, and if in any way temporarily contra-indicated, their use may be for a while justifiably postponed."

It will be seen that Dr. McDaniel's views are very widely different from those of our talented young friend (I say young, because he is a single man), Dr. W. A. B. Norcom, of Edenton, N. C., as expressed in an able paper recently published by him upon the same disease. Dr. Norcom regards the malarial poison as the real cause, and quinine as the remedy, as absolutely the sine qua non, and resorts to it as speedily as possible. He objects in strong terms to any dallying treatment, and we think he is right. Perhaps these gentlemen might enter into a compromise which might be mutually beneficial to their patients. If Dr. McDaniel would give a little *quinine* with his calomel, and Dr. Norcom a little *calomel* with his quinine, how would it do?

We believe with Dr. Norcom, that many a case of malarial hæmaturia, pernicious intermittent, etc., is lost while we are waiting to prepare the system for anti-periodics. Here we are obstructed by Dr. F. M. Peterson's valuable paper on puerperal eclampsia. In this paper Dr. Peterson reports a case of puerperal eclampsia treated with chloroform, opium, bromide of potassium, cold to the head etc., etc., and the patient recovered after nearly losing her life by a very obstinate post-partum hæmorrhage.

The question very naturally suggests itself, which was the most powerful factor in arresting the convulsions, the chloroform, opium, etc., or the hæmorrhage? We think it may have been the hæmorrhage; Dr. Peterson thinks it was the chloroform, and says: "But the greatest loss of blood, even *ad deli-*

quium animi, does not, *in any case*, tend to arrest the paroxysms, and may directly increase them." This is a bold, if not a rash, expression, especially when we remember the fact, that Ramsbotham, Meigs, Cazeau, Naeglé, Hartshorne, Barnes, Barker, Madden, Kennedy, M. Péter, Thomas, Lusk, White, Goodell, and a host of other able men whose names might be mentioned, have given opinions as regards the value of venæsection *directly the reverse of this*, and we do not feel any surprise whatever, when Dr. Peterson says, "in conclusion, I must beg the pardon of the Profession for a dogmatic assertion of opinions."

Some other questions arise in this case, too. May not the chloroform have been the most potent cause of the post-partum hæmorrhage? Would it not have been better to have bled the woman freely and used morphia hypodermically when he first resorted to chloroform?

Nélaton's theory that chloroform produces, or induces anæmia of the brain, we believe is true, and so far good in puerperal eclampsia; but no one contends, as yet, that it induces at the same time anæmia of the heart, lungs, and kidneys, consequently, while it may cause syncope in any case in which we have actual hyperæmia, it must, of necessity, increase the congestion in other important organs.

We regard this article as a very able one, and especially well gotten up; however, we can not indorse Dr. P.'s opinions with the present lights before us, and we are sure that we would have bled that woman long before she had had a post-partum hæmorrhage.

For reasons before stated, we must again pass over valuable papers, and pass on to the last paper in the Transactions.

Last, but not the least, is the "Annual Oration," by S. D. Seelye, M. D., of Montgomery, Alabama. The subject of his oration is "Cell-life the Basis of all Force, both Mental and Physical." Dr. Seelye demonstrates, in a very satisfactory, lucid, and attractive manner, well suited to a mixed audience, that the basis of our organism, the source of all pain, all force is the primordial cell. He shows that each little cell that goes to build up our bodies and keep each separate organ in repair, though but an atom in size, appropriates or sips the nectar of its own individual life from the blood as it passes; and shows that, in order to have pure blood, we must have pure air, sunshine, well regulated exercise, nutritious and properly-prepared food, sound sleep, and rest. The physiological changes of life and death, or renewal and waste, are constantly going on through the agency of these little cells.

Muscular overstrain and brain worry, as well as disease itself, induce an increase of the destructive metamorphosis, and weakens, to a corresponding extent, the recuperative or biotic force.

When we reflect on this subject of cell-life, we are led to exclaim: "Strange, that a harp of a thousand strings should keep in tune so long," and more especially when there are so many untoward causes to militate against its perfect harmony. By God's mercy, it keeps in tune; yet, by our own course of life we can very materially aid in lengthening or shortening it. Dr. Seelye evidently believes in educating the people upon the true principles of medicine. So do we. Then they will be better qualified to take care of themselves and families, and will the more highly appreciate the educated and intelligent physician. This oration is plain, chaste, practical, and sensible.

As a whole, the Transactions of the Medical Association of Alabama constitute a very valuable addition to the medical literature of the day, and reflect great credit both upon the physicians of that State and upon the publishers. We would be glad to see a copy of it in the hands of all our physicians.

The next meeting of the Association will be held at Montgomery, on the second Tuesday of April, 1875. R. L. P.

A TREATISE ON FOOD AND DIETETICS PHYSIOLOGICALLY AND THERAPEUTICALLY CONSIDERED. By F. W. PAVY, M. D., F. R. S., Lecturer on Physiology at Guy's Hospital, London. Henry C. Lea, Philadelphia. 1874.

Dr. Pavy, it will be remembered, stated in the last edition of his work on "Digestion, its Disorders and Treatment," that he would add in his next issue a section on Food. In the preparation necessary for the accomplishment of that purpose, he has accumulated such a mass of material that what was intended as a section for the new issue of an old volume has become a work complete and entire in itself. Indeed, the subject of food is one of such general and deep interest, both to the well and sick, and the physiological facts in this connection are, in late years, so numerous and valuable that one can readily understand how, in the hands of a master, the material accumulated only for an addition to an old edifice, should have become ample for a large and stately building. In addition to the facts thus given, when it is remembered that, in the English language, there is no systematic treatise on the subject of food, one can understand how Dr. Pavy was tempted into the preparation of a separate volume; and all will thank him for the thought and the action based upon it. The public, secular as well as professional, will receive with a warm welcome a work so important, interesting, and valuable, prepared by one who, for years, has been accepted as authority on the subject of food, and its transformation into the forces and representatives of life. While the author has not devoted himself to original research to any material extent, he has perhaps accomplished a more valuable purpose in the analysis and digestion of the material of others, giving as the result of his labors an epitome of demonstrable and important facts. The style adopted is happy in the extreme; concise, lucid, comprehensive, chaste, and excellent.

The early part of the work is devoted to a consideration of the dynamics of food and the forces of which food is supposed to be the primary equivalent. As this study constitutes in the main an analysis of the connecting links between raw material and the problem of vitality, one can receive with due consideration the reports of one who, familiar with the feeders of vitality, strives to explain the transformation of matter into the visible manifestations of organic life. It is a subject difficult, mysterious, and unsatisfactory. One can, at least, say that in this connection the author is the equal of his predecessors. Between the ingestion of the grain of wheat and the thought representing its equivalent, there are labarynths in which the wisest have been bewildered and lost. Dr. Pavy's views in this respect, though unallied to demonstration, are at least ingenious and interesting.

A valuable portion of the volume is that devoted to a subversion of the old and classic view, that aliments are divisible into the calorifacient and histogenetic groups. While Dr. Pavy is not original in this satisfactory exposure of the untenability of Liebig's cherished views, it is at least interesting to find him in this respect corroborating the views of others. It may be stated that to-day these old and favorite doctrines of Liebig are exploded, and, according to the best evidences available, that both nitrogenous and non-nitrogenous articles of diet subserve the double purpose of calorification and histogenesis.

The author believes that the amount of nitrogen excreted bears no special relation to the amount of exercise endured. Whether he, with many German chemico-physiologists, are correct in this claim, may well be doubted. It is well known that in the experiments undertaken in this connection, the results are exactly the opposite of those represented by Dr. Pavy. In the well known examinations instituted by Flint, Jr., Dalton, Hammond, Draper, and others, on the occasion of one of the pedestrian feats of Weston, it was clearly demonstrated that the amount of urea excreted bore a direct relation to the degree of muscular exercise undergone. That muscular waste is not expressed after muscular strain in an increased amount of urea excreted, can not, at present, be readily accepted as physiological truth, though no one can fail to be impressed with the denial made by Dr. Pavy in this connection.

That the excretion of urea is increased by the use of a nitrogeous diet, Dr. Pavy distinctly asserts, and it is pleasing to find this long accepted view thus recently and fully confirmed. In regard to the value of gelatine as an element of diet, Dr. Pavy corroborates the recent statements made by others, to the effect that after the use of gelatine as food, the amount of urea excreted is increased, just as is the case after the use of animal food. How much assimilation occurs in this connection is not yet, it seems, determined, and while gelatine may be regarded as a tissue preservative, it is not practicable as yet to say that it is a tissue builder.

In connection with the non-nitrogenous class of food, Dr. Pavy reïterates the views very generally now adopted, that fat is superior to starch and sugar as a generator of heat and "force."

Alcohol is regarded as chiefly a producer of force, and as almost wholly oxidized in the system. The author calls attention to a phenomenon now well known, and yet not as widely known as it should be—viz., that in all previous experiments as to the amount of alcohol excreted and the amount consumed or oxidized, experimenters have been induced to believe that a larger amount is excreted than is the case, from the fact that in urine there is a substance responding to all the tests for alcohol, and yet wholly different from it; this substance being found even in the urine of those who consume no alcohol whatever.

The author gives a most valuable analysis of almost all the known articles of food, and shows by an examination of the diversified food used by different nationalities, that whatever be the kind of food used in various countries, the highest condition of mental and physical vigor is only attainable where the diet is mixed and varied. In this connection there is furnished valuable dietary tables used in hospitals, with suggestions for their improvement. Not only therefore does Dr. Pavy examine the question of food in its relations to the well, but also to the sick. The work must be as it deserves to be, a standard authority upon this subject. It is replete with the most valuable instruction. The publisher has issued it with commendable judgment and liberality.

MISCELLANEOUS.

"Non omnes eadem mirantur ament que."

Blood-Drinkers.—Upon inquiry at slaughter-houses, it is found that there are nearly two hundred persons in the city of New York who are in the habit of drinking blood, flowing warmly from oxen, for strengthening purposes and for the cure of certain diseases. A lady is reported to have spoken to an inquirer as follows: "Professor Velpeau, of Paris, prescribed blood for me. I was consumptive and hastening to the grave. It has prolonged my life fifteen years. I had the utmost repugnance for it at first, but now a half-pint of hot blood from a well-conditioned ox is the greatest luxury of my life. My sister's baby, so far, has been preserved and nourished with little else but blood. I know twenty persons who drink it in my own neighborhood to whom I have recommended it. It has extraordinary effects on some people, especially women, but should not be resorted to unless there is absolute weakness of the system." On a visit of the inquirer to a slaughter-house in Tenth avenue, near Forty-second street, he found a delicate-looking woman, with a sickly boy, holding a glass to catch the blood which ran from an ox with his throat cut. Both drank two or three glasses in turn, and departed with an appearance of added vigor. One of the butchers was asked if he ever drank blood, and is stated to have replied to the following effect: "Shure, an' I do, now: why not, now; faith an' ye couldn't tell the difference between it an' milk. It's just as swate, shure, and in the winter it's warm and foin. Bedad, but it's stringthinin', shure. Hould on, an' I'll get ye a dhrap. It's best warm—runnin' right from the baste." The proprietor said: "All last winter we had men, women, and children every morning to drink blood. They always imbibe beast's blood; never the blood of sheep. Some of them wince a bit at first, but, when you close your eyes, blood warm from the beast's neck has just the same taste as warm milk from the cow. We don't charge for the blood, excepting when we sell it to sugar refiners." The blood of beeves is asserted to be more efficacious for weak lungs than cod-liver oil.—*Philadelphia Record.*

Determination of Sex in Utero—The "Chicago Medical Examiner" has an interesting paper from Drs. A. B. Strong and D. Steele, containing the results of careful examination of one hundred pregnant females, with a view to test the truth of the recently-proposed method of determining the sex before birth. The report concludes as follows:

"As regards the artificial divisions of the uterine tumor given above, we found the fœtal pulsations most distinct in the left lower quarter in thirty cases; in the left upper quarter in five, and in the right upper quarter in three, the latter all cases of breech presentation. All the others were vertex, forty-one in the first position, and six in the third. If the fœtal heart be heard most distinctly above the imaginary transverse line, the presentation is most likely that of a breech; if below the line, it is almost certainly a case of vertex presentation. Inspection and palpation, however, afford valuable information in the determination of the fœtal position, and exclusive reliance should not be placed upon auscultation.

"In conclusion, it may be generally stated that we find an opinion as to the sex of the child, founded on the rate of the fœtal pulse, to be of little more value than a guess, while the presentation, generally, and the exact position, possibly, may be accurately determined."

Castor Oil Vomited up Forty Minutes after being Injected into the Rectum. By H. M. Hearn, M. D., Statesville, Tenn.—On the 30th of July, 1874, I was called in great haste to Mrs. E. H——, aged forty-seven, who was complaining of great nausea and incessant retching—vomiting a glairy mucus, and also everything that was taken into the stomach; hence we were forced to resort to the use of injections, both hypodermical and rectal.

There being considerable constipation, it was evidently necessary to open the bowels as speedily as possible. For this purpose we used the ordinary injection—castor oil forming a part, and which was vomited up within forty minutes afterwards. The attention of Dr. Fletcher (who was present in consultation) was immediately called to the appearance of the ejected matter in the night-glass, when he carefully separated the oil from the mucus, and bottled near a tablespoonful, which he took to his office and thoroughly examined. It was, beyond all doubt, the oil which had been injected, as she had taken no oil into the stomach.

Her bowels were freely purged shortly afterwards.

She has been a very healthy woman until within the last twelve months, during which time she has been suffering some irregularity in her menstrual periods.—*Nashville Jour. of Med. and Surg.*

Nutritive Meat Jelly.—Dr. Anstie, in his lectures on diseases of the nervous system, says that when it is necessary to give condensed nutriment in the smallest possible bulk, "nothing equals this jelly." "Lean beef fillet, three pounds; lean veal, three pounds; lean mutton, three pounds, cut up small and put into a saucepan *with no water;* simmer (never boiling) by the fire for eight hours; strain the liquid (from a small quantity of tasteless insoluble fibre that remains), and let it jellify into a soft mass. This is an immensely concentrated *meat,* minus very little but the water which has been driven off; a teaspoonful or two of it is a wonderful support, and can be taken every hour with ease."—*Ex.*

Slow Progress of Homœopathy in Great Britain.—The "Medical Press and Circular" notices a leading article in the "Homœopathic Review," in which the latter laments over the unattractiveness of the homœopathic practice, and makes an appeal to its readers to unite in seducing, if possible, the rising generation of the Medical Profession. The "Review" makes the statement, that "of the towns in England above 10,000 and below 20,000 population at the last census, 45 possessed no qualified representation of homœopathy at all, and 12 other towns had only one each; of the towns between 20,000 and 50,000 population, no less than 38 had no resident homœopathist; 14 of them had only one each, and 5 others only two each; of the towns between 50,000 and 100,000, 9 had no homœopathic physician, 7 had only 1 each, and six others had only two each; while there were, and are actually, 4 towns above the 100,000 limit in which no homœopathist has settled."

The "Review" further says, ... "Neither can we feel satisfied that our hospitals and dispensaries do at all what they might do in the way of influencing third and fourth years' students. What has London done in this matter with its hospital of sixty beds? What has Birmingham with its well-tried staff and influential committee? What have the Liverpool dispensaries, which admit their 10,000 to 12,000 cases a year? Is it not from these places that our recruits have come, or are coming? . . . . The local influence of these institutions on the members of the Profession, and on the students in our metropolitan and provincial schools, is practically nil."—*Medical Record.*

A Case of Chylous Urine.—(In the "Edinburgh Medical Journal,") Mr. Robert Smith reports the case of a married woman who, until about two years previous, had enjoyed uninterrupted good health. She then began to be annoyed by a constant pain in her side, in a position which corresponded to the region and course of the left ureter. There were periods of exacerbation when the pain became acute and was accompanied by sickness. She experienced a scalding extending upward along the urethra when she voided urine, at the same time that the quantity became diminished; her breath became short, and her ankles swelled toward night. A swelling at the seat became apparent, enlarged, and was very sensitive on motion or pressure. This lasted for some time, until one morning, feeling a temporary relief, she took a walk, which induced a return of her agony. On reaching home she threw herself on her bed, and felt over-powered by a feeling of faintness; then something gave way internally, the swelling in the side subsided, and she soon found herself free from pain, and slept in comparative comfort. The urine next passed looked like thick blood, and contained large quantities of pus; the amount passed after this gradually increased; it was of a dull white color, with a heavy sediment. The œdema disappeared from her ankles, and she was without pain, but suffered from a ceaseless thirst and great weakness, with loss of flesh and appetite. These symptoms gradually progressed, until she died in a comatose condition and greatly emaciated. The urine retained the same character to the last, containing a little fat, albumen, and much pus. The remedy which most diminished the quantity of urine passed was gallic acid, but it was discontinued on account of distressing symptoms which supervened on its use.—*Med. Times.*

The Local Treatment of Cavities in the Lungs.—With the idea of disinfecting the cheesy putrid matter in the cavities of the lungs and the dilated bronchi, the author injected directly into such cavities fluid and gaseous remedies.

He introduced a large canula of an aspirator through the thorax wall (on the right side, between the second and third rib a little to the right of the sternal border) into the cavity of a patient some years consumptive. This canula was allowed to remain three days in situ, permanganate of potash in weak solution being injected. This had no bad result whatever. He tried the same with a case of dilated bronchi; in this case the secretion and general condition of the patient improved.

In the case of a man forty-nine years old, with dilated bronchi of more than five years' standing, causing a cavity on the right side apex (often hæmoptysis, fever, albuminuria, on account of amyloid degeneration of kidneys), Mosler and Hueter went to work as follows: At the upper border of the third rib, five and a half ctms. from the right sternal border, he made an incision three ctms. long, through the skin and muscles, and then with forceps proceeded inwards until a whistling inspiration showed that the caving was opened. Mosler and Hueter did not expect pneumothorax, as they supposed that an adhesion had taken place of the pleura, on account of the long standing of the disease. They now introduced a silver drainage-tube, fastened the same with adhesive plaster, and placed some carbolized lint and an ice-bag over it; no reäction whatever, profuse discharge of pus through the canula. On the tenth day hæmoptysis, inhalation by means of spray of diluted sesquichloride of iron was continued even after the hæmorrhage had ceased. No other reäction or increased lung trouble whatever, the cough and fever even lessened, although the patient died from the excessive disturbance of nutrition, three months after the operation.—*Berlin Klin. Woch.*

Lard as an Unguent.—It is well known that rubbing the body with hog's fat has the effect of reducing the temperature of the skin in scarlet fever. A gentleman of our acquaintance has used the fat portion of smoked ham with beneficial results, and writes to the editor to disseminate the fact for others' benefit. A celebrated German physician recommends to incorporate one or two grammes of carbolic acid into one hundred grammes of lard, and, with this, to rub the whole body, excepting the head, two or three times a day, according to the intensity of inflammation characterizing the case in hand. The effect of this kind of treatment is to produce a pleasant feeling of coolness, to keep the skin softer, and after each application the temperature of the skin falls somewhat. The carbolic acid operates to destroy the germs and spores of the disease.—*Ex.*

Medical Maxims.—All physicians should be familiar with the following maxims of Chomel, which have become classical: The proper aim of the physician is, first, not to do harm; and second, to try to do good. The physician is not to treat diseases, but patients affected with diseases. The former of these maxims inculcates, in other words, the protection and promotion of tolerance as a fundamental rule in the practice of medicine. The latter inculcates this rule with still greater emphasis.—*Exchange.*

Swaim's Panacea.—An ignorant book-binder in New York, who could not even write his name, contracted a disreputable disease, for which he was treated by Dr. Quackenboss, then an old practitioner in that city. He was cured by the aid of a preparation of sarsaparilla, similar to the French Syrop de Cuisinier, the formula for which the Doctor kindly gave to his patient, that he might save expense by manufacturing it for himself. Swaim removed to Philadelphia, and conceived the idea of turning his personal experience to profit. He made a quantity of the syrup and took it to the Pennsylvania Hospital, and asked permission to give it to some of the patients. The patients appeared to be benefited, and Swaim then requested Professors Chapman and Gibson, visiting physician and surgeon of the hospital, to give their estimate of it in writing. This they did, thoughtlessly, after being apprized of the ingredients. Shortly afterwards "Swaim's Panacea" came out in the newspapers in flaring capitals, with the certificates of the two distinguished professors, which also headed a large pamphlet filled with certificates of wonderful cures performed by it. At once the nostrum was received into popular favor, and the sales of it soon became enormous. It was even exported in large quantities to the West Indies, South America and Europe. Swaim, who had learned to write his name in order to affix it to his labels, made a splendid fortune, and built himself a palatial residence on Chestnut street. Both he and his distinguished endorsers have gone to their long rest—he exultant with triumph, the professors annoyed to the last by chagrin.—*Ex.*

On the Action of Calomel when Applied to the Eye.—Professor Kammerer states that, having occasion to apply calomel to the eye in his own case, he seized the opportunity to determine whether the agent had only a mechanical action on the conjunctiva, or whether it was chemically changed and absorbed by the mucous membrane. With this view he tested his urine twice a week while using the remedy in this manner, and found undoubted evidence of mercury therein. He cites two more cases besides his own in which the same results were obtained.

Professor Kammerer thinks it can not be doubted that the finely divided calomel, in contact with the secretions of the eye, is partly at least changed into sublimate, and as such absorbed by the conjunctiva; that it acts chemically on the fluids and tissues of the eye, and therefore its effects are not merely dependent upon mechanical irritation, as has been supposed.—*Exchange.*

Danger of Intra-Uterine Injections.—The "Gazette de Joulin" gives the details of two cases, which show that while intra-uterine injections are energetic agents in modifying the conditions of this mucous cavity, a third, consisting of a weak infusion of chamomile and diluted perchloride of iron was succeeded by death in thirty hours, after decided symptoms of sub-acute peritonitis. The mucous lining of the uterus and right fallopian tube, and the adjacent peritoneal surface, were found, after death, covered with an ink-black clot, and presenting unmistakable evidences of inflammation.—*Exchange.*

Two Cases of Anæsthetization during Sleep.—Having read in the April number of your journal an article entitled "Can a Person be Anæsthetized during Sleep?" it occurred to me that a brief report of two cases of successful chloroformization during sleep might be interesting.

The first case was that of a little girl named Parsons, aged eight years. As a sequel to acute otitis media, the mastoid cells of one side became inflamed; and Dr. E. M. Curtis was invited to take charge of the little sufferer.

Deeming it expedient to operate for the evacuation of the pus as soon as convenient, we agreed to meet at 9 oclock on the following morning for this purpose. On our arrival we learned that the patient had slept but little during the night, but was then sleeping sweetly. Chloroform was at once administered upon a four-by-six piece of surgeon's lint, held as near the child's mouth as possible without coming in actual contact. Not the slightest effort was made by the child to avoid the inhalation of the anæsthetic, and in a few moments she was well under its influence, and was immediately carried into an adjoining room and placed upon a lounge, where the doctor very soon completed the operation.

The child being still anæsthetized, the wound was dressed, and before she had fully gained consciousness we both left the room, having first given proper instructions to the parents. On making my evening visit I was informed that my patient was not yet aware that she had undergone a severe surgical operation, or that either Dr. Curtis or myself had visited her on that day.

My second case occurred on the 15th instant, in the person of a little girl two and a half years old, named Drake, brought to me from Gelana, Nevada, for the purpose of having a supernumerary toe removed from each of her feet. While waiting for the arrival of Dr. Nelson, who assisted me in the operation, the child fell asleep and was placed in the operating chair. As soon as the Doctor arrived, chloroform was administered in the manner already detailed in the former case, and with equal success, and the operation was soon completed without the occurrence of an unfavorable circumstance.

In the first case the condition of the child probably favored the ready induction of anæsthesia, while in the second, age alone could be supposed to have influenced the result.—*Dr. R. W. Cluness, in Pac. Med. and Surg. Jour.*

Restoring Damaged Thermometers.—Dr. H. J. Barnes, in the "Boston Medical and Surgical Journal," thus describes a simple method of restoring instruments that have become useless on account of displacement of the registering portion of mercury:

My registering thermometer, after being used two or three times, became worthless, as I was informed by one of our instrument-makers, in consequence of the needle being shaken down and uniting with the mercury at the bottom of the glass. He said he had a number of his own spoiled in this way by a gentleman examining them in his store, and that he could not repair them. He "would sell me another," and gave me the valuable advice to "be more careful with it."

I declined to invest again in an article so easily made worthless, and set about repairing the old one, and succeeded after a number of experiments. Applying gentle heat to the bottom, the mercury quickly rises to an expansion near the top of the glass. Permitting a very little to enter this expansion, a sharp, quick blow on the top breaks the column in a number of places. Shaking all down in the lower bulb, a little remains at the top to form the needle. This is forced out by a considerable heat; then partially shake down, and the instrument is again serviceable. If too much mercury rises into the upper expansion, the needle is made too long, or perhaps the top of the glass is broken off.

The Influence of Inhalation of Chloroform on the Fœtus during Delivery.—Dr. Zweiful ("Berliner Klinische Wochenschrift") observing that children born when chloroform had been administered to the mother were frequently jaundiced, was induced to make some investigations to see whether the anæsthetic could be traced to the child, which might explain the excess of jaundiced children when the mothers were chloroformed.

He first searched for chloroform in the placenta. This was carefully washed and then cut up into small pieces and placed into a retort, and distilled by means of the sand-bath. There was a perceptible odor of the vapor; but to be more certain he tested for it, and in every case a trace was found. He then proceeded to examine the urine of children whose mothers had been anæsthetized, and without exception found chloroform.

In one case, whilst the anæsthetic was being given to the mother, the fœtal pulse suddenly became less frequent and the sounds scarcely audible. Delivery had to be hastened to rescue the child.

From the experiments made, he came to the conclusion that chloroform inhaled by the mother passes to the child, and it is anæsthetized with the mother. As narcotism is contra-indicated in children, Dr. Zweifel intends prosecuting his investigations to see to what extent it can be given without injury to the child.—*London Med. Record.*

Diseases Produced by Boots and Shoes.—From the "Doctor" we take the following practical remarks by Sir James Paget, upon the above subject:

To study deformities of the toes a good idea of a perfect foot should be first obtained. In a perfect female foot is: (1) Great width and fullness of instep; (2) well marked great toe; (3) long second toe; (4) very small, or in some cases almost suppressed little toe. In the male the great toe is not quite so prominent as the second. The feet of all persons can not be deformed, nor can corns and bunions be produced in every one. This is due to the great activity of their nutrition, by which the waste of the day is more than compensated by the repair of the night. The trouble set up in the integuments, fasciæ and tendons of the toe are rather to be regarded as diseases set up by pressure and friction of boots and shoes.

(1) Mutual compression of the toes. Naturally there is a considerable interval between the first and second toes, and in a less degree between the others, so that when the foot bears the weight of the body, each toe is free from contact with its fellow—hence in wet clay a separate impression would be made. In the deformity which is produced by small boots, the toes are squeezed together so as to form a transverse arch, the first and second toes only then bearing the weight of the body. There are formed (*a*) soft corns between the toes by their friction on each other. (*b*) Hard corns on the outer side of the little toe and inner side of the great toe and projecting points pressed upon. (*c*) Complete immobility of the toes, excepting the great toe. The natural mobility in civilized nations does not now exist in more than one person in five hundred. (*d*) Painful burse between the metatarsal bones. (*e*) In extreme cases corns and chafed spots are produced by the squeezing and rubbing together of the pads of the great and little toes.

The foot enlarges when bearing the weight of the body and towards evening. Hence a boot made from a measure of the foot when suspended in air and in the morning, is too small for the foot in the evening. Woman's feet are generally measured in the air. The high heels of their boots cause them to be always walking down hill, however level the path may be, thus driving the toes more and more to the front. (2) Deflection of the toes falls chiefly on the great toe, and is the result of wearing (*a*) boots too narrow in front; (*b*) boots having the point in a line with the centre of the heel; (*c*) short boots especially. In these the great toe is brought sharply in contact with the end; and as the tarsus and metatarsus will not yield much and the metatarso-phalangeal joint will, a deflection of the great toe takes place outwards and sometimes downwards. This is the most frequent and worst form. This deflection of the great toe is the source of great trouble, as bunions occur over the metatarso-phalangeal joint, soft corns on the second, third and fourth toes, under which it lies, and worst of all a total loss of movement in the great toe.

Treatment of these deformities: If just beginning, keep the toes apart by pads of plaster. Isinglass plaster upon felt is the best. The pad must be worn day and night. Of course, bad boots must be left off. The treatment at night is even more important than that during the day, for then especially repair goes on, and the least relaxation at night more than undoes the good done in the day. Sometimes it has been considered necessary to divide tendons, but these do not produce the deformity, they merely adapt themselves to it.

Effects of Stair-Climbing upon the Health of Girls.—Mr. Geo. E. Smith, after having investigated the above subject, has concluded that the frequent and excessive climbing of stairs which is rendered necessary by the arrangement of most young ladies' seminaries or colleges is a prolific source of spinal weakness, menorrhagia, etc. He believes, however, that improper dress is really the primary cause of these troubles; tight corsets and heavy skirts rendering any unusual muscular exertion hurtful and dangerous.—*Detroit Rev. of Chem and Phar.*

A APPEEL FOR ARE TO THE SEXTANT OF THE OLD BRICK MEETINHOUSE.

BY A. GASPER.

O sextant of the meetinhouse, which sweeps
And dusts, or is supposed to! and makes fiers,
And lites the gas, and sometimes leaves a screw loose,
in which case it smells orful—worse than lamp-ile;
And wrings the Bel and toles it when men dyes
to the grief of survivin pardners, and sweeps pathes;
And for the servases gits $100 per anum,
Which them that thinks deer, let em try it;
Getin up before starlite in all wethers and
Kindlin fiers when the wether is as cold
As zero, and like as not green wood for kindlers;
I wouldn't be hired to do it for no some—
But o sextant! there are 1 kommodity
Wich's more than goald, wich doant cost nothin,
Worth more than anything exsep the Sole of Mann!
i mean power Are, sextant, i mean power Are!
O it is plenty out o doores, so plenty it doant no
What on airth to do with itself, but flys about
Scatterin leaves and blowin off men's hats;
in short, its jest 'free as are' out doores.
But o sextant, in our church its scarce as piety,
scarce as bank bills when agints beg for misshuns,
Wich some say is purty often (taint nothin to me,
What I give aint nothin to nobody) but o sextant,
u shet 500 men, wimmen and children,
Speshally the latter, up in a tite place,
Some has bad breths, some aint 2 sweete,
Some is fevery, some is scrofilus, some has bad teeth,
And some haint none, and some aint over clean;
But every 1 on em breethes in & out and out an in,
Say 50 times a minit, or 1 million and a half breths an hour,
Now how long will a church ful of are last at that rate.
I ask you, say 15 minits, and then what's to be did?
Why then they must breathe it all over again,
And then agin, and so on, till each has took it down
At least 10 times, and let it up agin, and wants more.
The same individible doant have the privilege
of brethen his own air, and no one's else;
Each one must take whatever comes to him;
O Sextant, doant you know our lungs is belluses,

To blo the fier of life, and keep it from
goin out; and how can bellnses blo without wind?
And aint wind *are?* i put it to your conschens,
Are is the same to us as milk to babies,
Or water is to fish, or pendlums to clox—
Or roots and airbs unto an injun Doctor,
Or little pills unto on omepath,
Or boys to gurls. Are is for us to breathe,
What signifies who preaches if I can't breathe?
Wat's Pol? Wats Pollus? to sinners who are ded?
Ded for want of breth; why sextant, when we dye
Its only cause we cant brethe no more—that's all.
And now, o sextant, let me beg of you
2 let a little are into our church,
(Pewer are is certain proper for the pews)
And do it weak days and Sundays tew—
It aint much trouble—only make a hole
And the are will come in of itself;
It luvs to cum in whar it can git warm;
And o how it will rouse the people up,
And sperrit up the preacher, and stop garps,
And yawns, and figgets, as effectooal
As wind on the dry Boans the Proffit tells of. [*Atlanta Med. Jour.*

Croton Chloral Hydrate.—The recent experiments of Dr. Yeo, of King's College Hospital, London, have directed the attention of medical men once more to croton chloral as a therapeutic agent of extraordinary power. Professor Liebreich, who had already won the lasting gratitude of the Profession by his study of the medicinal virtues of chloral hydrate, some two years ago pointed out some remarkable peculiarities in the physiological action of this compound, then newly discovered, and gave to it the name which it now bears. Croton chloral is one of the products of the reäction of chlorine upon aldehyde. It was discovered accidentally by Drs. G. Kramer and Pinner, whose experiments were made with a view to utilize an impure spirit containing aldehyde, in the manufacture of chloral. When dry chlorine is passed over pure aldehyde ($C_2 H_4 O$), a violent reäction takes place, resulting in the formation of hydrochloric acid, chloral ($C_2 H Cl_3 O$), croton chloral ($C_4 H_2 Cl_4 O$), together with a variety of other products. By treating the residue with sulphuric acid and subjecting it to fractional distillation, the croton chloral is obtained as a dense oily liquid, boiling at about 328° F. It resembles in its physical properties common chloral, and, like that compound, unites with water, though with some difficulty, to form a crystallizable hydrate. The hydrate forms beautiful silvery white crystals, having a sweetish, melon-like flavor, readily distinguished from chloral hydrate by their very slight solubility in cold water. It is soluble in hot distilled water, and still more so if the water contains 25 per cent. of glycerin. A permanent solution may be made with the latter menstruüm, containing thirty-two grains of the hydrate in the fluid ounce, and will greatly facilitate the dispensing of the drug.

The conclusions arrived at by Dr. Yeo ("London Lancet") are, that in croton chloral we possess a remedy of remarkable efficacy in some cases of neuralgia of the branches of the nervus trigeminus, and that it also has the power of affording relief in other obstinate forms of neuralgia; that it is of use in certain cases of diffused muscular pain; that there is scarcely any remedy that is likely to prove more valuable for the relief of the distressing night cough of chronic phthisis; its efficacy in procuring sleep seems very variable in moderate doses; its effects in purely rheumatic cases are scarcely appreciable, while for hysteria it is of little or no use. In regard to the dose, Dr. Yeo says: "The effects produced on different individuals vary so greatly that an unusually wide range must be given to the dose. In strong males a dose of ten grains may be required to produce an appreciable effect, while two grains may suffice for susceptible females." He, therefore, recommends that the remedy be given in moderate and frequently repeated doses, until the amount of tolerance of the medicine in each case is discovered. In severe neuralgias from two to five grains may be given every hour, until fifteen grains have been taken. A larger quantity than this the doctor does not consider safe with our present imperfect knowledge of the power of the remedy.

MEDICAL NEWS.

'Nulla dies sine linea."

We understand that the body of Lady Dilke, who recently died, has been taken over to Germany in order to be submitted to the process of cremation. It is impossible to doubt that the method of disposing of the dead advocated by Sir Henry Thompson is attaining popularity in this country, or that it will eventually supersede inhumation. Sir Charles Dilke has set a courageous example, which we hope and believe will be widely followed as soon as a suitable establishment has been erected in this country.——The Woolwich Board of Guardians lately advertised for a dispenser. Singular to relate, in these days of fierce competition, there was only one application received for the post, and that from a female, who, we are sorry to say, was considered by the guardians ineligible on account of her sex. There can be no possible objection to employing women as dispensers of medicine; it is a sphere of work in which they would probably display great aptitude and care. ——We are glad to be able to state that "Messrs. Gay & Co., of Fleet street, have received orders from the General Post-office to paint the whole of the pillar-boxes a bright vermilion color, the same as the mail carts, with the impenetrable paint, as they find it the best, having used it for three years. The chief object of the change is to clearly distinguish the letter-boxes from the iron rubbish-boxes with which our streets are adorned."—*Lon. Lancet.*——The Siberian plague has made considerable havoc at Tobolsk during June and July. No fewer than 4775 horses, 516 cattle, 1030 sheep, 52 pigs, and 15 goats have died of it. Even human beings have caught it, and 106 have succumbed.——The subject of the Fothergillian Gold Medal for 1875 is "The Disease of the Testicle and Spermatic Cord." For 1876, "On Cataract and its treatment." Essays must be sent in before the 1st of the previous November.——Dr. Van Best has been appointed for a second year to lecture and to conduct the midwifery class in the

University of Aberdeen, during the absence of Professor Inglis. ———The ancient town of Damascus is now suffering terribly from fever. In all 14,000 persons, including the garrison have been attacked.———*Yellow Fever.*—There is some yellow fever in Charleston, S. C., and the Board of Health of that city have made a report on that subject. They say that during the last six or seven weeks several cases of yellow fever have occurred, many of which have terminated fatally.———Dr. J. M. Botts, of Woodford county, Ky., was called to visit a patient at a distance, October 10th, and has not since been heard of. Foul play is suspected.———*Female Physicians.*—The corner-stone of a new building for the Woman's Medical College of Pennsylvania was laid on October 1st.———The Hartford Medical Society has recognized the position of women in the field of medicine, by electing to membership, at its last meeting, Mrs. Dr. Ellen E. Hammond.———During the last week in August a congress of Danish physicians, more than two hundred in number, met at Aarhuus, when, among other points under discussion, the claims of women to enter the profession were brought forward. The general feeling at the meeting seemed to be that there was nothing to prevent women from treating the diseases of their sex with ability and success, while in the matter of obstetric practice it was in the highest degree desirable to transfer it completely from the hands of common midwives to those of women duly certificated by the University.———An inquest was recently held in Manchester, England, on the body of a shoemaker named Donovan, who was an inmate of the Prestwich Lunatic Asylum, and worked at his trade there. He had a great taste for eating iron, and died suddenly on September 18th. The post-mortem examination showed that the stomach contained one pound ten ounces of nails, some an inch and a half long, several pieces of iron half an inch square, and an awl without a handle. His death resulted from peritonitis.———A correspondent of the "Clinic" thus describes St. Thomas' Hospital: Being built last, it represents most parfectly the latest views upon hospital construction in England. It is a pavilion hospital.——*The Canada Medical Association.*—The seventh annual meeting of this organization took place at Niagara Falls, August 5th, the President, Dr. Marsden, in the chair, the session lasting two days. Dr. Le Barron Botsford, of St. Johns, New Brunswick, was elected President for the ensuing year, and Halifax was chosen as the place of next meeting.——*The Akkas.*—The Italian Geographical Society has recently received news of the death of the African explorer, Miani, and also a number of interesting objects forwarded to them by that traveller just previous to his decease. Among the curiosities were two African dwarfs belonging to the tribe Akkas. These individuals, aged respectfully 18 and 19 years, are but 28 and 34 inches in height, and belong to a peculiar race of people, the existence of which, first affirmed by Herodotus, has of late years been rediscovered by Du Chaillu and Schweinfarth. These strange beings are of a light copper color, and noticeable for their extreme ventral prominence and very thin members. The lips are very long, the chin sharply recedes, and the hair, though tightly kinked, is very long and abundant. Their agility is said to be remarkable in view of their peculiar build.—*Druggist's Circular.*——*Death of an Eccentric Doctor.*—On Sunday morning Dr. John Washington, of Elizabeth, was found dead in his office at No. 48 Cortlandt street, New York, He was over eighty years old, and leaves a large estate. His real name was John Henry August Van Reichten, but by an act of Legislature, in 1874, it was changed to John Washington. Some years ago the Doctor lost his only son, to whom he was tenderly attached. He built a vault in Evergreen Cemetery, with a kind of chapel in it, with reading desk and seats and suspended lamp. He was an eccentric person, given greatly to suits at law, and paying large sums to his counsel.—*Phil. Med. Reporter.*——*Female Army Surgeons.*—The Vienna "Medicinisch-Chirurgische Centralblatt" reports that the Committee of the Society for the care of the Sick and Wounded in War in St. Petersburg has approved of a proposal for allowing women to perform the duties of military surgeons in the field and in stationary hospitals. To carry out the plan, it is intended to institute a course of instruction for female army surgeons ("Feldscheererinnen") in the Russian University.——— The Louisville Medical College closes the first month of its regular session with 270 students.

EDITORIAL.

"Nullius addictus jurare in verba magistri."—Hor.

The Lesson of Anstie's Death.—In that always beautiful "Psalm of Life" which, more than all else, has made Longfellow loved and admired, the world has been well and fitly told what is the lesson to be derived from the life of a great man:

"Lives of great men all remind us,
  We can make our lives sublime,
And, departing, leave behind us,
  Footprints on the sands of Time."

Taking the word sublime as it is ordinarily understood, "conspicuous, raised on high," this lesson loses most of its beauty; but accept it, as was intended by the author, in the sense of being refined by fire, and there is no sentiment in the English language which the noble privilege and power of poetry have more beautifully preserved, and more chastely adorned.

Those familiar with the life of Dr. Francis Anstie are well aware that though the immediate descendant of a wealthy man, he did not spring from that privileged class in England who, by noble inheritance, apart from noble deeds, are believed to represent what is termed Nobility. One of England's greatest writers has in his best publication, through the declaration of the chief character of the work, enunciated this noble sentiment: "I would not be a pensioner on the dead; I honor birth and ancestry when they are regarded as incentives to exertion, not as the title deeds to sloth; not to the past, but to the future looks true nobility, and finds its blazon in posterity." However beautiful, and, what is better, however true this sentiment, the most superficial reader knows that while its author was honored and loved for it, while the titled of his own countrymen applauded it, yet practically in his own government it was but a sentiment. There was nothing in the work-a-day life of his own country which verified and represented it. On the contrary, he lived and died amid a people who, however they may theoretically bow before the pride of intellect, acknowledge chiefly the pride of position.

Born amid such a people, it may well be imagined what to the young Anstie was the price of success; labor unceasing; labor in character always scientific; in accuracy and object, the theme of universal praise; in philanthropy, such as to secure popular love for its author while living; the tears of a great and grateful Nation when dead. The life and labors of Anstie may well be regarded then as types for the true and noble physician; the first consecrated to the genius and nobility of medicine; the last to the improvement and blessing of humanity. After such a life, what more beautiful and coveted epitaph than that which the scientific world writes over his new and lamented grave; the tried and true physician, the brave and unselfish philanthropist.

Where one sees in such a death the end of a socially obscure but triumphant life, he must be a poor measurer of men who does not enroll Anstie among "the great"; who does not feel, with Longfellow, the truth and beauty of the declaration, that each one can make a life, though tried in the fires of obscurity and poverty, pure and "sublime."

If there be to the physician any illustration better than all others of the teaching, that the lives of great men remind each, when tried by the fires of life, he can make his life sublime, and, departing, leave honored footprints on the sands of time, this illustration is imperishably emblazoned in the life of the loved and lamented dead. What, however, is the lesson of his life? Surely, it is that which every earnest man should read for himself and declare aloud for all, that the noble life is that spent for the welfare of others, and not for the aggrandizement of self. Tried by this severest test, the life of Anstie was noble in deed and in truth.

The life of every physician is one of sacrifice, and as self-sacrifice is always noble, he that is most noble, is he who has made of his life the completest sacrifice. The lesson, then, of Anstie's life is as the lesson of his death, the nobility of self-sacrifice. There are, however, other lessons to be read in his life; that a man, however obscure, however humble, can be brave enough to detect malfeasance in high office, and bold enough to declare it; can be so strong as to secure reformation of abuse and honesty of administration; increase in the health of nations and diminution in the death rate of mankind.

No man ever exposed with greater boldness and with greater personal and professional responsibility corporate malfeasance and inefficiency, and no man has, in his life, better illustrated the beautiful truth, that he who so acts, is sure to receive the honors of his Profession and the plaudits of his countrymen.

Such are the lessons not only in the life, but in the death of this great man; triumph over the trials of birth and position; triumph in difficult and original fields of labor; triumph in the respect and confidence of those whose lives he has blessed and protected; triumph in the veneration of his brethren. Finally, in his untimely death, he reïterates what, in his beautiful life, he had so triumphantly demonstrated; that wherever life is directly or indirectly entrusted to public or corporate custody, its security is only to be obtained in making directly responsible for it the efficient and honorable physician; that in all public institutions, the lives of the inmates are only secure when their hygienic management is, by their guardians, responsibly entrustéd to the Medical Profession. When this grand result is accomplished, there will be established, in the increased security and the value of life, a proud and proper monument in illustration of the beautiful record, the triumphant labor, and the untimely death of Anstie.

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ORIGINAL COMMUNICATIONS.

"Qui docet discit."

ART. I.—URONOLOGY AND ITS PRACTICAL APPLICATIONS—A GUIDE TO THE EXAMINATION OF URINE AND ITS DIAGNOSTIC VALUE, WITH EXTRACTS FROM THE WORKS OF THE MOST MODERN INVESTIGATORS. By GEORGE M. KOBER, M. D., Washington, D. C.

My last paper was devoted to the consideration of the chlorides, sulphates, oxalate of lime (oxaluria), bile, sugar, inosite, extractive matters and albuminuria; and in this paper we shall conclude our remarks on the subject of Uronology and its Value in Diagnosis.

FIBRIN IN URINE.

Fibrin either in a fluid or coägulable state has been found in the urine in certain morbid conditions of the system; it is present whenever blood is present, and the blood coägula can not be mistaken very well for anything else; occasionally it is either seen as a firm, colorless, or gelatinous mass, or as the exudative casts under the microscope. Fibrin in a fluid state is often encountered in the urine of persons living in Brazil (Isle de France) and is known as "coägulable urine," the name is derived from the fact that the fibrin a few hours after emission coägulates, and forms either a sediment, or if present in larger quantities, gives the fluid the appearance of a gelatinous mass. Vogel states that this condition may often be mistaken for urine containing pus.

"Coägulable urine" may or may not contain blood, the size of the coägula is in some degree a guide, whether the fibrin is derived from the blood effused or not; Vogel mentions the case of a woman afflicted with Bright's disease, in which the urine for a number of days, a few hours after it was voided, exhibited pinkish coägula of fibrin at the bottom of the vessel; the coägula contained numerous white blood corpuscles, but only a few red corpuscles, so few indeed, that the blood which they represented could not have furnished the whole amount of fibrin present.

The presence of fibrin in the urine indicates the exudation of liquor sanguinis in some parts of the urinary system; it is most generally derived from the kidneys, but may originate from any part of the urinary passages.—(Vogel, p. 2697.)

BLOOD IN THE URINE.

Urine of a peculiar red color, of a more or less smoky hue, depositing upon standing, a dark coffee ground sediment may naturally arouse suspicion that hæmorrhage in some part of the urinary passages is taking or has taken place. The physician should remember, that many other causes may change the color to the hue above described. To make sure then of the presence of blood, the urine should be heated, or nitric acid added, if it becomes turbid and its color changed to brown. blood is present; the discovery by the microscope of floating blood discs is the most conclusive proof.

The next step is to determine the source of the blood. If it is urethral or vaginal, it is easily known by the circumstances attending it, or upon digital examination; it escapes generally without any effort of micturition.

If it comes from the bladder, there is a frequent desire to pass water; the blood is not equally diffused in the urine when voided; there may be retention of urine after one or two evacuations of bloody urine, produced by a coägulum in the mouth of the urethra.

When the blood is derived from the kidneys the microscope may reveal blood casts; the epithelium enlarged in the blood, is small and more or less round, very unlike that from the bladder, which is larger, flat and scaly; there is generally pain and evidence, perhaps, of either an organic lesion or the passage of a calculus; blood clots under these circumstances are only formed in the ureters or infundibulum of the bladder, their passage gives rise to distressing pain, they are of a cylindrical form, and owing to their intermixture with clear urine are of a white color.

Mr. John Hilton recommends, in order to study the clots more closely, to float them out in water; they frequently exhibit the shape of the cavity in which the blood was effused, the clots formed in the bladder, for instance, have irregular circular outlines, are flattened in shape, with serrated or beveled edges,

Now to consider briefly the causes of hæmorrhage. As has been observed, it may be urethral or vaginal; in the latter instance, it may come from the uterus, or the wall of the vagina. Causes of a traumatic or idiopathic character may be productive of the hæmorrhage, and to enter into these, is not within the scope of this treatise.

Vesical hæmorrhage may be due to a calculus, erosions of the walls of the bladder produced by malignant growths, chronic inflammation or otherwise; it may be due to hyperæmia of the mucous coat and consequent rupture of blood vessels (as in the so-called vesical hæmorrhoids). In diagnosticating the different causes, we are aided frequently by the presence of gravel, fragments of calculi, pus, cancer cells, and the characteristic symptoms of the affliction producing the hæmorrhage. Hæmorrhage from the uterus generally involves the presence of a calculus. If the hæmorrhage is renal and the blood considerable, it is generally derived from the pelvis of the kidneys, induced by the passage of a calculus or the existence of cancer. Pyelitis is one of the most frequent causes of hæmorrhage. If the blood is derived from the parenchyma of the kidneys, the quantity is small, and is generally indicative of the existence of Bright's disease; the tube casts, pus corpuscles and the presence of albumen, generally confirm the diagnosis of the source and cause of the mischief. The blood in these cases is derived from the vessels of the Malpighian bodies. Hyperæmia of these vessels may also be produced by the undue administration of stimulating diuretics, as turpentine or cantharides, and a bloody urine is often the result.

A form of intermittent hæmaturia has been described by Dr. Edward H. Greenhow. The affection is characterized by a large amount of fibrin, with comparatively few red blood corpuscles. Crystals of oxalate of lime and hyaline casts have been observed in the urine during the paroxysm. The disease is ushered in by a chill, followed by an imperfect hot stage and more rarely by sweating. The short duration of the affection shows the absence of inflammation or any important lesion of the kidneys. Flint believes it to be a constitutional disease of which the hæmaturia is only a local expression. From its paroxysmal character it was supposed to be a variety of ague, but Dr. Greenhow says it is not. The ætiology is likely to remain obscure for some time. Greenhow's observation was limited to seven cases; and it has never been observed in this country. Another form of hæmaturia prevails in certain towns of the Cape of Good Hope, Mauritius, Egypt, and Brazil, which has been called "endemic hæmaturia." Dr. John Harley has found it to be caused by a parasite (bilharzia hæmatobia) belonging to the family distomvesra, (of the class "frematodia"), which inhabits the small vessels of the mucous membrane of the urinary passages and kidneys. The larvæ of this parasite are found in the river-water of the above named places, and gain access into the system by drinking of the water during the act of bathing.

Blood-pigment or hæmatine dissolved in the urine does not always indicate local disease or rupture of a blood vessel in any part of the urinary passages; it must be regarded as indicating rather a specially morbid condition of the blood, as it is associated with septic poisons, or with the cachectic disease.—(Parkes.) It may be observed in typhus fever, malignant variola, remittent fever, yellow fever, scurvy and purpura. Finally the physician is to remember that blood is often mixed by malingerers and others for the purposes of deception.

The therapeutical indications will vary with the nature of the case; care is to be taken to prevent the retention of a coägulum in the bladder, as it may form the nucleus of a calculus. Rest and astringents are important indications in all hæmorrhages.

FAT IN URINE.

Fat occurring in the urine, unless we can account for it by an undue introduction of articles containing oil into the system, or that it has been mixed for the purpose of deception, is indicative of a grave pathological condition of the kidneys. I have, particularly, reference to fatty degeneration of that organ; the fat in these cases appears in the urine either in free globules, in cells, or in tube casts; the fat may also be due to fatty degeneration of the epithelial cells of the ureters and bladder.

In some cases fat is met with in the urine in a molecular state, giving the fluid a milky appearance, termed by Prout *chylous urine.* Dr. B. Jones believes this condition to be due to the chyle in the blood, which, on account of some alteration of the structure of the kidneys, exudes during active circulation, in connection with one or more constituents of the blood from the capillaries, and recommends the use of astringents. Dr. Beale, though admitting the intimate connection of this condition with the absorption of chyle, does not consider it to depend upon any permanent morbid change in the secreting structure of the kidney.*

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* Dr. T. R. Lewis, Assistant Surgeon H. M. British forces, Calcutta, has written an excellent memoir on a hæmatozoon inhabiting human blood and its relation to chyluria. In March, 1870, the Doctor discovered, while examining some chylous urine, a hæmatoid worm in it; but carried his researches no

The tests for fat are its solubility in ether, the microscope, and a very simple one, the paper test; this consists in dipping a piece of white paper into the fatty urine, and if, after drying, a greasy spot remains, the proof is conclusive.

Lea and Atlee have recently pointed out an error which is apt to occur in analysis of urine—viz., an illusory detection of fat. They found, in testing a specimen of urine, that the ether rose to the top so charged with matter as to resemble a half liquid pomade. Separated by a pipette and spontaneously evaporated, it left a dirty-whitish, greasy mass. A careful examination of this residue showed that instead of consisting of fatty acids, it contained nothing but the normal constituents of the urine, for it was soluble in water, reäppearing as normal urine. It was then ascertained that almost any specimen of urine will form an emulsion when violently agitated with ether, especially if the ether contains a small amount of alcohol, but this condition is not essential. When, therefore, ether appears to dissolve out fatty matter from urine, the ethereal solution should be separated, allowed to evaporate spontaneously, and, if the residue be soluble in water, it can not be held to contain fat.

In some cases, the oil is detected by the unassisted eye, but errors are unavoidable in trusting merely to the appearance of the fluid. The opalescence caused by a sediment of urates, the pellicle which often forms on urine (consisting not of fat, but vibriones, fungi, and crystals "of triple phosphates"), as well

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further. It was not until July, 1872, that he was led to the belief that this worm (to which the name *Filaria Sanguinis Hominis* has been given) stood in causative relation to chylous urine; he examined such urine associated with more or less marked hæmaturia in between fifteen and twenty patients, and has found them in all cases in the excretion; in many if not in all the patients, he also detected them in the blood. The average diameter of this species of filaria is that of a red corpuscle, and its average length 46 times greater—i. e., it is 1-3500 of an inch one way, by 1-25 the other.

It is highly probable that the pathology of this mysterious affection has been unraveled by Dr. Lewis.—(Amer. Jour. Med. Sciences. Oct., '73, page 517.]

as the "kyestein pellicle," observed in the pregnant state, have all been mistaken for that of fatty matter; some oily matter does enter into the composition of "kyestein."

A fatty matter was discovered by Keller in the urine of a patient, and termed by him "uro-stealith"; its pathological relation is unknown, since experience is limited to but one case.

In all cases the physician should satisfy himself that the fatty urine was really discharged by the patient, and not caused by a greasy urinal or the admixture of oily medicinal substances.

I shall now consider a few substances, not yet spoken of, which generally form sediments in the urine after secretion, and which may deposit in the renal passages or after emission. The sediments of uric acid, urates, and phosphates have been discussed with the different constituents of urine.

Sediments of Hippuric Acid.—Owing to the solubility of this acid, its sediments are rare. When it does occur, it appears under the microscope in the shape of long, four-sided, acuminated prisms, or slender needles fixed in uric acid crystals, with which they are sometimes confounded, as well as with phosphates. They are distinguished from phosphates by being insoluble in acids, and from uric acid they may be separated by boiling with strong alcohol.—(Parkes.) The causes which produce the precipitation of hippuric acid are much the same as those effecting the deposit of uric acid.

Hippuric acid has been found in considerable quantity in the urine of persons in health, after the ingestion of certain fruits and berries, as the cloudberries (rubus chamæmorus) and the myrtleberry (vaccinium vitis idæa). The introduction of benzoic and cinnamic acid has had a similar effect. In disease, the physician should first satisfy himself whether the hippuric acid has not been produced by the use of these articles.

It has been found in large quantity in the acid fever urine of patients. Lehmann attributes the acidity of this kind of urine to the presence of hippuric acid. It has also been found to be present in diabetes and chorea.

2. *Sediments of Leucine* are precipitated in round corpus-

cles, sometimes with a concentric form, and look like heaps of fat; but when crystallized from pure solutions, it appears as fine, dark-colored, needle-like crystals. To recognize it fully, it must be separated by careful sublimation.—(Parkes.) The suspected leucine is to be placed on platinum, carefully moistened, and then dried with nitric acid. The almost imperceptible flake which is left is to be moistened with caustic soda and evaporated carefully over a spirit-lamp. If leucine is present, it forms an oily-looking drop.—(Scherer.)

3. *Sediments of Tyrosine* are of a greenish-yellow color, composed of heaps of fine needles, which can be obtained on evaporation. It ought to be treated with nitric acid, like leucine, and then a little liq. sodæ used. The nitric acid gives a deep orange-yellow color, which becomes deep yellow on evaporation. The soda gives the yellow flake a red tinge, and on heat and evaporation, a black-brown residue is left.—(Scherer.)

Hoffman has proposed the following delicate test: A solution of mercuric nitrate, nearly neutral, is to be treated with the solution suspected to contain tyrosine; if it is present, a reddish precipitate is produced, and the supernatant fluid is of a very dark rose color.

Both Leucine and Tyrosine are the result of disintegration of highly nitrogenous tissues, supposed to be especially derived from the principal glands. They have never been noticed in urine in health, and are generally associated in disease, as in acute yellow atrophy of the liver, in typhus fever and small-pox. A larger quantity is found in the urine in gangrene. Urea in these cases is notably diminished or entirely absent in the urine, being replaced by the leucine and tyrosine.

4. *Sediments of Cystine* form a white or light fawn-colored amorphous, rather bulky precipitate, or they appear at once as six-sided plates. In both cases ammonia dissolves it, so do fixed alkalies and their carbonates; and from this solution it crystallizes on spontaneous evaporation. It does not disappear when the urine is gently warmed, and it is insoluble in carbonate of ammonia, in dilute hydrochloric acid, and in acetic acid.

Its presence in the urine is of rare occurrence, and only important as it may give rise to the formation of a calculus in the renal passages. Scherer has found it in the liver, and since it contains much sulphur (over 25 per cent.), its elimination is generally associated with derangement of the functions or organic disease of that organ. It is not at all unlikely that it is produced there. It is a curious fact that cystine has been found in the urine, in many instances, in members of the same family.

5. *Sediments of Xanthine* have been observed in a crystalline form by Dr. Bence Jones (Journal of the Chemical Society, 1862). It has long since been known to form calculi in the urinary passages, and a sediment is therefore always of importance to the physician. The cause of increased production of this substance in the system, and the formation of sediments, are, as yet, obscure. Pure xanthine can be obtained from urine containing it by the following mode of procedure:

Precipitate with baryta water, filter, evaporate to a syrup, and set aside to crystallize. Remove the crystals, dilute the mother liquid, and boil with cupric acetate. Wash the precipitate thereby produced, dissolve in warm nitric acid, reprecipitate with nitrate of silver, wash the precipitate, and crystallize it from dilute nitric acid. Wash the crystals with ammoniacal silver solution, decompose by sulphuretted hydrogen, filter, evaporate to a low bulk, and wash with a little water the deposit of "xanthine."

Hypoxnathine is closely allied to the above; it has been found in the pancreas, spleen, and liver of man, and in small quantity in the urine.—(Strecker.) It is evidently a product of animal tissue changes, and its chemical composition is similar to that of uric acid.

Allantoine is, as yet, of no importance to the physician; it appears in the urine of cows and calves, and has been observed in the urine of new-born infants. Schottin found it in urine of man, after the undue introduction of tannic acid into the system; and Frerichs and Stüdeler in the urine of dogs during impeded respiration. It can be artificially produced from uric acid, as follows:

Take 20 grammes of uric acid, stir up in 200 to 400 c.c. of water, add a small quantity of acetic acid, gradually introduce 100 grammes of lead peroxide, and expose to sunlight for some time. Boil, filter, and evaporate the filtrate until, on cooling, the allantoine crystallizes out in glassy, tasteless prisms.

I shall now consider urinary deposits, consisting chiefly of organic bodies, which are derived either from the structures of the urinary organs, or are the products of disease, as inflammation, cancer, and tubercle.

1. *Mucus and Epithelium* from the urinary passages. Mucus is always present in urine; but in health the quantity is so small that it forms but a dim cloud. In the febrile affections, as pneumonia, pleuritis, typhus, etc., the quantity is increased, and in the catarrhal inflammation of the mucous membrane of the urinary passages the quantity increases to such an extent as to form a deposit soon after the urine is voided. This deposit consists of mucus and epithelium, and the particular character of the latter often enables us to trace the mischief to a certain locality of the urinary organs. The microscope, though readily discerning the epithelium, does not distinguish the mucus until it has been precipitated by alcohol and acids, or by the addition of diluted tincture of iodine.

The epithelial cells from the *bladder* are of various sizes and stages of formation, and frequently free nuclei are seen. In catarrh of the bladder, the mucus, from its cohesion, is apt to form transparent flakes or cylinders, resembling casts from the pelvis of the kidney.

The epithelium from the *ureter* is columnar in its character, and not unlike that found in the male urethra, which is mostly columnar, and is more flattened than that of the bladder, and less regular than that of the pelvis of the kidney. Mixed with it, there is a good deal of scaly epithelium, especially towards the orifice of the urethra.

The epithelial cells from the *pelvis of the kidney* are often triangular or caudate, with well-defined nuclei. They generally adhere together in groups of three to ten, when they appear to have an imbricated arrangement, and perhaps are more closely connected than naturally adhesive mucus. They are never found in healthy urine, but are present very commonly in catarrhal and calculus cystitis. Tailed or caudate cells are also sometimes present with pelvic epithelium. Often we meet with large cells of scaly epithelium in the urine of females; they are derived from the vagina. They vary much in size and form, and are sometimes very irregular in shape, with uneven, ragged edges.

Renal epithelium is only found in disease. It consists of round or slightly compressed cells, or masses of material with well-defined central portions or nuclei, which are not cleft like the pus nucleus under the action of acetic acid, but become at first more defined and afterwards paler and smaller. In the urine they are less polygonal and more rounded than they are in the renal canals. Their presence indicates more or less desquamation from the tubes, while their morbid condition and admixture with other products may indicate still greater disease. Thus it is sometimes fatty, the whole space between the nucleus and the cell-wall being filled with fatty globules. The character of this epithelium enables us to diagnosticate the different forms of Bright's disease.

PUS.

Urine containing pus deposits an opaque, creamy sediment, or glairy mass, and is generally alkaline or albuminous. If the sediment is agitated with an equal quantity of liquor potassæ, a dense gelatinous mass results. The microscope, however, is the readiest and most infallible means of diagnosing the pus-corpuscles. The discrimination between the deposit of pus and mucus is not difficult; the deposit of pus is more dense than that of mucus; the pus is known by its nucleus becoming cleft into two, three or five divisions, under the action of acetic acid, whereas, if it is mucus, filaments of mucus will be developed.

There are cases in which we can not prove the presence of pus, though we have every reason to suspect it; this is observed when the urine is strongly alkaline; the presence of carb. of ammonia converts the pus-corpuscles into a slimy, gelatinous-looking mass, which is often mistaken for mucus.

The occurrence of pus in the urine is proof of the existence of suppuration somewhere in the genito-urinary organs. In gonorrhœa, cystitis, and pyelitis we have the existence of other symptoms; the amount of pus is greater in cystitis than in pyelitis or nephritis, and whenever a very large amount is present, the opening of an abscess into some part of the urinary passages may be suspected. Vogel has pointed out a very excellent mode of differentiating, by the character of the pus corpuscles, superficial from deep-seated suppuration. He says, when the corpuscles are round and well developed, with their characteristic nuclei readily brought out by acetic acid, their origin in a catarrhal inflammation of the mucous membrane, especially of the bladder, may be strongly suspected. On the other hand, pus corpuscles of irregular contour, exhibiting irregular nuclei when treated with acetic acid, or an ill-defined granular mass, consisting of irregularly shaped pus corpuscles and partially destroyed cells, indicate the probable existence of deep-seated suppuration, ulceration, or tubercular disease.

CANCER AND TUBERCLE MASSES.

Cancer Masses are generally found in the urine in the form of an aggregation of cells, mother and daughter cells (parent and secondary cells), cells with thick walls, and tailed and spindle-shaped elongated cells. Their presence indicate the existence of cancer somewhere in the genito-urinary organs. The kidneys are rarely the seat of cancer, the uterus and bladder are more frequently affected. The latter organ is generally the seat of the variety of cancer known as encephaloid or fungus hæmatodes. When the bladder, uterus or urethra are affected, the diagnosis is not difficult, since other symptoms, or a digital and vaginal examination will enable us to render a positive diagnosis. Cancer of the kidney is always more difficult to diagnosticate. The presence of cancer-cells, which can not be traced to the uterus, urethra or bladder, the existence of hæmaturia or albuminuria, the pain in the lumbar regions, and the enlargement of the kidney, as ascertained by percussion, will justify us in presuming that organ to be the seat of the mischief. In cases of melanotic cancer, whether it has its seat in the urinary organs or elsewhere, Eiselt, Priban and others have noticed that the urine, on standing, assumes the color of porter, and that on the addition of concentrated nitric acid it instantly presents the same color.

Tubercle.—The little yellow, cheesy masses of degenerated tubercle form a sediment, which is insoluble in acetic acid, and without the aid of the microscope readily mistaken for pus. The deposit under the microscope, according to Vogel, is seen to consist of pus corpuscles, not exhibiting when treated with acetic acid, normal nuclei; of small irregular nucleoli, with an ill-defined detritus-fragments of cells, disorganized connective tissue and elastic filaments, and an indistinct and finely granular mass, with which occasionally fragments of crystals of cholestrine are mixed. The tubercle may have its seat in the mucous membrane or sub-mucous tissue of the bladder, ureter or pelvis of the kidney.

CYLINDERS AND RENAL CASTS.

Cylinders occur in the urine and have various modes of origin:

1. *From the bladder* as long, flat membrani-form, twisted or folded bodies.

2. *From the prostate* as coägula, two or three times as broad as renal cylinders. They are soluble in acetic acid; amylaceous corpuscles may exist in them.

3. *From the ureter* and *pelvis of the kidney* the coägula are cylindrical, pyriform or globular.

4. *From the kidney tubes*, cylinders or renal casts are found in various diseases. They vary in breadth from one five-hundredth to one-thousandth of an inch, *i. e.*, from about the breadth of the straight renal tubes to a half or a third of that

size. Their length varies from one two-hundredth to one-fiftieth of an inch. The terms used by Dr. George Johnson express the special character of the several varieties of casts.

(*a*) *Epithelial Casts* are composed of a tube-like aggregation of epithelial cells, derived from the tubes of Bellini, and indicate "desquamative nephritis" or acute Bright's disease. The process of desquamation may cease in a few days without producing any serious consequences; their presence in the urine need not alarm the physician nor his patient; a careful treatment will often make them disappear in a very short time. If pus corpuscles are mixed with sediments of epithelial casts, a more extensive inflammation, either of the parenchyma, the calices or pelvis of the kidney may be suspected.

(*b*) *Large Waxy Casts and Small Waxy Casts* (or the hyaline casts of Vogel and Basham). The transparent casts with compound cells, or with isolated transparent molecules and grape-like clusters of granules, represent a stage of chronic subacute disease, and if these casts become more and more loaded with large and gradually increasing fat granules and oil drops, the progress of fatal fatty degeneration is clearly marked—(Basham). Da Costa states, "the hyaline or waxy casts may be found in any form of Bright's disease, acute as well as chronic. In the waxy kidney, however, they vastly preponderate, and are of large size. Vogel believes the hyaline casts to be formed, by a fibrinous exudation, either on the small convoluted tubes, or on the larger tubes of Bellini, and gives that inflammation the very appropriate name of croupous inflammation." He also states that their presence indicates an extensive inflammation, which is apt to assume a chronic form.

Probin affirms, on the other hand, that the hyaline casts or waxy casts do not consist of fibrin, nor are they uniformly granular like fibrin, which has been for some time coägulated. Moreover, according to this observer, the granular, the hyaline, and the epithelial casts are found in certain of the straight tubes and convoluted tubes, in the contents of the pelves of the kidneys, and sometimes in the urine contained in the bladder in bodies dead with different affections, when there is no ground to suspect the existence of renal disease. He states also that they are found in the kidneys of animals killed for food. [Flint's Practice, p. 753.] A solution of iodine is the best reägent for making the waxy hyaline or transparent casts. I have pointed out that the passage of crystalline oxalate of lime may give rise to tube casts, and believe that the experience of many physicians will testify to the fact, that the presence of these hyaline casts is not always indicative of grave and incurable lesions of the kidney. The truth of the matter is, that the urine (in Bright's disease) is too often used in its broadest sense, and that students and physicians do not always make the necessary distinctions in the different affections of the parenchyma of the kidney; they are too apt to regard all forms of Bright's disease as necessarily fatal.

(*c*) *Granular Casts* or casts covered with disintegrated epithelium, with its compound inflammation corpuscle accompanied by amorphous granular flakes stained with hæmatin, are chiefly found in the disease which leads to the contracted kidney. They are never seen in the acute complaint, excepting at its close, when it is assuming a chronic form.—(Da Costa.)

(*d*) *Fatty Casts* and epithelial cells filled with fat are seen in the urine coming from a highly fatty kidney, preëminently Bright's disease.—(Da Costa.)

(*e*) *Blood Casts* represent more or less hyperæmia and hæmorrhage from the kidney, or a calcareous, fatty or lardaceous degeneration of the blood vessels, especially those of the Malpighian corpuscles.

(*f*) *Purulent Casts* indicate suppuration.

Kidney structures in the urine indicate a breaking up of the structure of that organ.

Corpora amylacea may occur from the prostate gland. *Spermatozoa-Sarcinæ ventriculi vibriones* and *monads* (when the urine contains much mucus), *fungi* in acid urine—e. g., the *penicillum glaucum*, its *spores*, *thallus*, and *fructification*, the *torulæ cerevisiæ* in saccharine urine, the larvæ of *distanum* *hæma tabium*, and various *entozoa* have been observed in the urine, under certain circumstances and in different localities.

I have spoken of the different subjects under different headings, and need not again allude to their significance.

SYSTEMATIC ANALYSIS OF URINE.

The following are the details of the process as recommended by Thudichum:

Test the action of the urine with litmus:

I. It is acid and has no sediment, proceed to 2.

II. It is acid and has a sediment; pour off the clear liquid, filtering, if necessary, and proceed to analyze the filtrate according to 2. Examine the sediment dry.

1. Heat a sample of urine to boiling after the addition of some acetic acid. A coägulum forms, which does not disappear on the addition of nitric acid—*albumen.*

Boil some quantity (500 c.c.) of the urine with acetic acid, filter off the coägulated albumen, and treat the filtrate as under 2.

(*a*) The coägulum is white—*pure albumen.*

(*b*) The coägulum is greenish—*albumen* probably colored with *bile.*

(*c*) The coägulum is brownish-red, probably from *blood;* wash and dry the coägulum; boil with alcohol containing a little sulphuric acid; if the filtrate is reddish, examine with spectroscope for acid hæmatine or evaporate to dryness; ignite, moisten the ash with a drop or two of concentrated hydrochloric acid, dilute with a little water, filter the solution through a small filter, and add to the filtrate a little potassium sulphocyanide; a red color conffrms the presence of blood.

2. Take 400 to 500 c.c. of the clear urine filtered from coägulum or sediment; evaporate in a porcelain dish or a water-bath to a thick syrup; divide the syrup into two parts, one equal to one-third, the other two-thirds of the whole.

(*a*) Extract the third with strong alcohol, filter, and examine the filtrate.

1. Evaporate a small portion nearly to dryness, and add a

little nitric or oxalic acid, and observe the crystalline forms of *urea, nitrate or oxalate.*

2. Precipitate the larger portion with a few drops of milk of lime and calcium chloride solution and filter; concentrate the filtrate in the water-bath to 10-12 c.c. Transfer to a beaker, add one-half c.c. of strong alcoholic solution of zinc chloride, stir well and allow to stand; *kreatinine chloride of zinc* crystallizes out in warty grains.

(*b*) Acidify the two-thirds with hydrochloric acid and extract with ether. Evaporate the ethereal solution and examine the residue for *hippuric acid.*

1. The filtrate will contain *earthy phosphate* and other salts; add ammonia, the *earthy* phosphates will be precipitated.

2. The insoluble residue consists of *mucus* and *uric acid.* Wash off the filter into a test tube, add one or two drops of caustic soda, warm and filter. The insoluble residue is *mucus.* The filtrate contains uric acid and hydrochloric acid; the *uric acid* separates out in crystals; collect and examine under the microscope, also verify the murexide test by applying the presence of *uric acid.*

3. The urine is brown or green; froths on shaking; colors a small piece of immersed filter paper yellow or green; probable presence of *bile matter.*

Place some of the urine upon a white plate and drop in a little strong nitric acid containing some nitrous, without shaking. The fluid turns successively green, blue, violet, and brown; presence of a derivate of coloring matter of the bile.

To a second portion add some lead acetate in solution; collect the precipitate, wash, dry and boil the dried precipitate with alcohol, to which a little sulphuric acid has been added, filter. The filtrate is green from "*biliprasine.*"

Evaporate a third portion of 3 to 500 c.c. on the water bath, extract with alcohol; search for biliary acids, *tauro and glykocholic.*

4. Take 1 c.c. of urine, dilute it with 4 to 5 c.c. of water, add one-half a c.c. of caustic soda, and add one drop of a very

dilute solution of copper sulphate; boil; a red granular precipitate of suboxyde of copper indicates the presence of "*sugar.*"

5. Immerse in the urine a piece of filter-paper moistened with acetate of lead solution, if the lead paper turns brown or black *sulphuretted hydrogen* is present.

6. Evaporate 40 to 50 c.c. of the urine to dryness, ignite the residue at a moderate heat until all the charcoal has been burnt off. Boil the residue with water and filter.

(*a* 1) Acidify a portion of the *filtrate* with hydrochloric acid, add barium chloride, a white precipitate proves the presence of *sulphuric acid.*

2. Acidify a second portion with nitric acid, add a drop of silver nitric; a white curdy precipitate indicates *hydrochloric acid.*

3. Acidify a third portion with acetic acid, add a little ferric chloride solution, a yellowish-white, gelatinous precipitate indicates *phosphoric acid.*

4. Evaporate the rest to dryness; take up a small portion on the end of a platinum wire and expose in a Bunsen or spirit lamp flame; a vivid yellow color proves the presence of *sodium.*

5. Dissolve a portion in a little water, add a drop or two of solution of platinic chloride; a yellow crystalline precipitate indicates *potassium.*

(*b*) Boil the residue insoluble in water with a little dilute hydrochloric acid, filter.

1. Boil a portion with nitric acid, add some potassium sulphocyanide solution; a deep red color proves the presence of *iron.*

2. Mix the rest with an excess of sodium acetate, add an excess of ammonium oxalate; a white precipitate proves the presence of *calcium.*

3. Filter off the lime precipitate, add to the filtrate ammonia; a white crystalline precipitate indicates the presence of *phosphate magnesia.*

7. Add to 50 or 100 c.c. of the fresh urine contained in a flask, a little milk of lime, mix and cork loosely, suspending a

moistened red litmus paper between the cork and the side of the flask. If the paper turns blue the presence of *ammonia* is proved.

8. Distill some urine with sulphuric acid, add to the distillate a little red fuming nitric acid, and then shake up with a drop of carbon desulphide, which, if *iodine* be present, will be colored pink.

Examination of the Sediment.—Allow any sediment to deposit at the bottom of a conical glass. Pour off as much of the liquid as possible, then take up a little sediment with a pipette, place on a glass slide and examine with the microscope.

A. The urine is acid.

I. The whole of the sediment seems amorphous.

1. On gently warming the whole dissolves—*urates;* confirm by adding a drop of hydrochloric acid; leave half an hour, when, if *uric acid* be present, it will have crystallized out in rhombic tables.

Also confirm by the murexide test.

2. The sediment does not dissolve on warming, but dissolves in a drop of acetic acid without effervescence; presence of *calcium phosphate.*

3. Glistening drops appear in the sediment and disappear on the addition of ether—*fat globules.*

(II) The sediment contains well formed crystals.

1. Small, glistening, transparent octahedra, insoluble in acetic acid—*calcium oxalate.*

2. Four-sided tables or six-sided rhombic plates often appearing grouped in bunches of spindle-shaped crystals—*uric acid* confirm by the murexide test.

3. Regular six-sided tables soluble in hydrochloric acid and ammonia, which char on heating. Boil with caustic soda containing a drop of very dilute acetate of lead; a black precipitate of sulphide of lead confirms the presence of *cystine.*

4. Wedge-shaped prismatic crystals, some separate, some united in form of a cross—*calcium phosphate.*

5. Greenish-brown grains with a radiating crystalline structure—*tyrosine.*

6. Needles or rhombic prisms easily soluble on warming—*hippuric acid.*

III. The sediment contains organized bodies.

1. Twisted fringy bundles, forming points, grains, etc.—*mucus.*

2. Concentrated granular bodies often united into a scale pavement-like mass—*mucus corpuscles.*

3. Circular bi-concave disks mostly yellowish, which swell up and more or less completely dissolve in acetic acid—*blood corpuscles* confirmed by spectroscopic reäctions.

4. Round, pale, faintly granular vesicles, of different sizes, which swell up considerably in acetic acid, lose their outward granular surface, and allow an inner nucleus of different form to be seen—*pus.*

5. Cylindrical masses with small vesicles, often mixed with blood and pus corpuscles: so-called *casts of the tubules.*

(*a*) Casts whose roundish nuclei are clearly visible through a delicate surrounding mass—*epithelial casts of Rellini's tubes,* mostly accompanied by the nucleated, epithelial cells of ureters and kidneys.

(*b*) Solid cylinders of thick, granular, nucleated nature are *granular renal casts,* and often contain blood and pus corpuscles with fat globules, crystals of calcium oxalate.

(*c*) Pale, transparent, solid cylinders, only seen with great difficulty—*hyaloid casts.*

6. *Epithelial cells.*

(*a*) *Pavement epithelium.*

(*b*) *Epithelial tubes.*

7. *Fermentation and thread fibres.*

8. Short, fine rods, threads, or square lumps, moving about in an undulating manner—*vibriones, spermaotozoa sarcina ventriculi.*

B. The urine is alkaline.

I. Crystalline sediment.

1. Rhombic vertical prisms soluble in acetic acid; on mixing with a little milk of lime, ammonia is evolved—*ammonio-magnesian phosphate.*

2. Wedge-shaped opaque masses giving the murexide reäction—*ammonia urate.*

II. Sediment is amorphous, usually *calcium phosphate.*

III. Sediment contains organized bodies; see above under A III.

The following details for the analysis of prostatic and urinary calculi are obtained from Thudichum's Physiological Chemistry:

Calculi, Prostatic.—Minute concretions, from the size of mustard or hemp seeds to that of barley corns. Dissolve powder in acetic acid, and observe evolution of carbonic acid gas. Add to the solution excess of ammonia, and observe that solution remains clear; absence of phosphates of earths; if solution forms deposit, phosphates of earths are present. If necessary, filter, and add oxalate of ammonium—a copious precipitate of calcium oxalate will ensue. The calculi, therefore, consist principally or entirely of *carbonate of calcium.*

Calculi, Urinary—Systematic Analysis.—Powder the calculus; heat a small portion of the powder to redness on some platinum foil, and observe whether any residue is left, which will not burn off.

A. In case it leaves a fixed residue, take a small portion of the original calculus, dissolve in concentrated nitric acid, evaporate to dryness on a water-bath in a white porcelain evaporating dish; dip a glass rod into the strongest ammonia and bring it near the residue in the dish, and observe whether a pink color is produced or not.

I. A pink color is produced, proving that the calculus contains *uric acid.* Observe whether a portion of the calculus melts on being heated.

(*a*) It melts.

1. And communicates a strong, yellow color to the flame of a spirit-lamp or Bunsen burner—*sodium urate.*

2. And communicates a violet color to the flame, giving the potassium spectrum—*potassium urate.*

(*b*) It does not melt; dissolve the residue left after ignition in a little dilute hydrochloric acid, add ammonia till alkaline, and then ammonium carbonate solution.

1. A white precipitate falls—*calcium urate.*

2. No precipitate; add some hydric sodic phosphate solution; a white crystalline precipitate falls—*magnesium urate.*

II. No pink color is produced. Observe whether a portion of the calculus melts on being heated strongly.

(*a*) It melts (fusible calculus). Treat the residue with acetic acid; it dissolves; add to the solution ammonia in excess; a white crystalline precipitate falls—*ammonio-magnesium phosphate.* In case the melted residue is insoluble in acetic acid, treat with hydrochloric acid; it dissolves; add to the solution ammonia; a white precipitate indicates *calcium phosphate.*

(*b*) It does not melt; moisten the residue with water, and test its reäction with litmus paper. It is not alkaline; treat with hydrochloric acid, it dissolves without effervescence; add to the solution ammonia in excess; white precipitate—*calcium phosphate.* Treat the calculus with acetic acid; it does not dissolve. Treat the residue, after heating, with acetic acid; it dissolves with effervescence—*calcium oxalate.* Treat the original calculus with acetic acid; it dissolves with effervescence—*calcium carbonate.*

B. The calculus, on being heated, does not leave a fixed residue. Treat a portion of the calculus with nitric acid, evaporate and expose to ammonia vapor as before.

I. A pink color is developed.

(*a*) Mix a portion of the powdered calculus with a little lime, and moisten with a little water; ammonia is evolved, and a red litmus paper suspended over the mass is turned blue—*ammonium urate.*

(*b*) No ammonia—*uric acid.*

II. No pink color is developed.

(*a*) But the nitric acid solution turns yellow as it is evaporated, and leaves a residue insoluble in potassium carbonate—*xanthine.*

(*b*) The nitric acid solution turns dark-brown, and leaves a residue soluble in ammonia—*cystine.*

French Decimal Weights and Measures.

The *metre*, or unit of length at 32° C. = 39.371 English inches at 62° F.
The *litre*, or unit of capacity = 1000 c.c. = 61.028 English cubic inches.
The *gramme*, or unit of weight = 15.434 Troy grains.

Table of Apothecaries' Weight and Measure U. S.

Pound.		Troy ounces.		Drachms.		Scruples.		Troy grains.
1	=	12	=	96	=	288	=	5760
		1	=	8	=	24	=	480
				1	=	3	=	60
						1	=	20

Gallon.		Pints.		Fluid ounces.		Fluid drachms.		Minims.		Cubic inches.
1	=	8	=	128	=	1024	=	61440	=	231
		1	=	16	=	128	=	7680	=	28.875
				1	=	8	=	480	=	1.804F
						1	=	60	=	.2256

Relative Value of Troy and Avoirdupois Weight.

Pound.		Pounds.		Pound.	Ounces.	Grains.
1 Troy	=	0.822857 Avoirdupois	=	0	13	72.5
1 Avoirdup's	=	1.215277 Troy	=	1	2	280.

In regard to test-chests, the student and practitioner will see for themselves what they need, and procure the chemicals and utensils as they require them. A suitable apparatus can be obtained from E. B. Benjamin, No. 10 Barclay street, New York; or Bullock & Crenshaw, No. 528 Arch street, Philadelphia. The test-chest furnished to the Medical Officers of the U. S. Army contains all that is required.

EXPLANATION TO THE ILLUSTRATIONS.

The plates have been copied from Neubauer and Vogel's work on Urinary Analysis. Plates I. and II. and Plate III., figures 1 to 4, were originally published in Dr. Otto Funke's Physiological Atlas, to whom we gladly acknowledge our indebtedness.

PLATE I.

Fig. 1.—Hippuric acid obtained from normal urine of man, re-crystallized from a watery solution.

During a very slow formation of the crystals they not unfrequently assume the form of the triple phosphates, and are readily mistaken for them; see left lower third of the field.

Fig. 2.—Uric acid in various forms, obtained either by the re-crystallization of a solution of uric acid, by treating urine with acids, thus decomposing the urates and liberating uric acid, or by spontaneous decomposition.

The various forms of uric acid from the most common form, the rhomboidal plates with obtuse and rounded angles to the more rare modifications are readily discerned. The dumb-bell-shaped forms seen in the upper left part of the figure, and which at times are observed in spontaneous deposits, were artificially produced; they were formerly supposed to consist of lime. Dr. Funke always obtained them by dissolving chemical pure uric acid in concentrated caustic potassa, and decomposing the solution under the microscope by muriatic acid.

Fig. 3.—Urinary sediment composed of uric acid, urate of soda, and oxalate of lime, from the urine of a convalescent from typhus fever. The uric acid crystals are here chiefly seen in large, dense bundles, joined two and two by their bases, each bundle being composed of innumerous long, slender, and whetstone-shaped crystals, which, as a rule, are colorless.

The beautiful shining and envelope-shaped crystals are oxalate of lime. The minute rounded or irregular dark-colored granules, occurring either singly or irregularly grouped together, are the urate of soda, which always appear in the urine in this molecular form.

Fig. 4.—Urinary deposit, composed of epithelial casts and numerous epithelial cells from the bladder of a typhoid fever patient, obtained after death by the introduction of a catheter.

These casts are the epithelial lining of the tubes of Bellini, the rounded nucleated cells are readily discerned through the granular molecular mass.

The isolated wedge-shaped caudate, and spindle-shaped nucleated cells are derived from the ureters, pelvis, and calices of the kidneys.

Fig. 5.—Urinary deposits, exhibiting hyaline casts, epithelium from the bladder, and mucus corpuscles, obtained from the urine of a patient affected with acute miliary tuberculosis.

These casts are, by reason of their transparency and homogeneous composition, difficult of recognition; at times they are, by their contents, rendered more distinct, such as minute granules of urate of soda; the ends are usually club-shaped.

The rounded, elongated, polygonal, and nucleated cells are pavement epithelium from the bladder, and strongly granulated mucus corpuscles.

Fig. 6.—Urinary deposit representing fibrin-casts, blood, and pus corpuscles, together with epithelial cells, obtained from albuminous urine of a typhoid patient, whose kidneys, upon section, exhibited a considerable inflammatory infiltration in the cortical substance.

The granular cylindrical bodies, apparently composed of a molecular substance, are nothing more nor less than coägulated fibrin (croupous exudation), and are exact casts of the tubes of Bellini; some contain a number of pus and blood corpuscles. These corpuscles are seen isolated in considerable number; some blood globules swollen and distended, others still exhibiting a marked central depression. The bi-polar cells have already been described under Fig. 3.

PLATE II.

Fig. 1.—Urinary sediment composed of urate of soda, from the morning urine of a tuberculous patient.

The whitish, yellowish, or brick-dust-colored sediments, so commonly observed in concentrated acid urine, particularly during febrile affections, and which are generally deposited after the temperature of the fluid is lowered beyond that of the body, consist almost always of urate of soda in the granular or molecular form; during rapid deposition the little granules become extremely fine, and are usually congregated in moss-like groups. At times, after the urine has been standing a few days, some fermentation fungi may be observed.

Fig. 2.—Urinary deposit, composed of urate of soda, phosphates, and coägulated mucus, derived from urine after three days' standing.

The urate of soda here appears in large, dark granules congregated together. The regular granular and membrane-like formation, represented about the middle of the field, are fractions of the peculiar scum formed of the amorphous earthy phosphates during the process of decomposition. The peculiar streaks, both narrow and broad, and apparently composed of fine points and granules, arranged in regular lines, are the so-called *mucus casts*, often observed in acid urine and frequently mistaken for casts; fermentation fungi (particularly near the lower edge of the field) and some strongly granular mucus-corpuscles are also observed scattered over the field.

Fig. 3.—Urinary deposit, composed of triple phosphates and numerous mucus corpuscles, derived from the fresh urine of alkaline reäction and turbid appearance of a patient affected with catarrh of the bladder.

The crystals of phosphate of magnesia and ammonia exhibit various forms, but are always readily recognized. The mucus corpuscles are small and granular, and mostly united with their edges to form large groups.

Fig. 4.—Urinary sediment composed of urate of soda, uric acid, and fermentation fungi, derived from urine which has undergone the process of acid fermentation.

Every normal urine and almost every abnormal urine of acid reäction undergoes the process of acid fermentation; during this period the minute nucleated fermentation fungi are formed and rapidly develop; the liberation of uric acid from the acid urate of soda also takes place during this time, and is seen as a deposit of yellowish-tinged crystals; minute octahedra of oxalate of lime are seen at this period of decomposition.

Fig. 5.—Urinary sediment composed of triple phosphates and urate of ammonia; obtained from the urine of a patient

suffering from paraplegia, consequent on disease of the spinal cord; the urine having undergone the process of alkaline fermentation.

The crystals of the triple phosphates are exhibited in their most common form. The urate of ammonia is at first deposited in the molecular form, but gradually crystallizes into dark globular and highly refractive bodies, from which curved, needle-shaped, conical and wart-like excrescences project.

Fig. 6.—Nitrate of urea is obtained from highly concentrated human urine by means of nitric acid.

PLATE III.

Fig. 1.—Urinary sediment, representing crystals of uric acid, from the urine of a young female affected with acute rheumatism during her menstrual period.

The rhomboidal plates, whetstone-shaped and barrel-shaped crystals of uric acid were of a yellowish-brown tinge.

In addition to the gold-dust-like deposit, quite commonly seen, numerous blood-corpuscles also of a yellowish tinge, swollen and bladder-like, and of variable sizes, can be observed.

Fig. 2.—Human blood corpuscles as treated with water. The gradual changes produced by water on the blood-cells are well exhibited in this figure, beginning along the left margin of the field, and progressing towards the right. The first effect of the action of water is to swell them up, they assume a lenticular and subsequently a spheroidal form, the central depression disappears, and is replaced by a prominence. In consequence thereof the cells appear smaller, the centre becomes bright and the rim dark. The imbibition of water causes them to appear pale, and renders it extremely difficult to distinguish them from the surrounding fluid; they are, however, with care still recognized as extremely hyaline delicate bubbles, which soon entirely disappear. Upon the addition of a concentrated solution of any neutral salt, they appear again with shrunken and crenated edges.

Fig. 3.—Pus corpuscles.

The lower half of the field represents normal pus-cells, round, pale, slightly granulated and of different sizes; some of which exhibit a single round eccentric nucleus, others may be seen with their nucleus cleft into two or more divisions. The figure also shows some of the corpuscles with sharp contours; others again have extremely faint outlines. The upper half of the figure exhibits the action of acetic acid on the pus-cells; they become swollen, the surface smooth and so hyaline that their contours can no longer be distinguished; the nuclei become, however, now more distinct, and are observed either in the single rounded, elongated, biscuit-shaped or horse-shoe-shaped form, or in the triple and quadruple groups.

Fig. 4.—Cystin, as obtained by the addition of caustic ammonia to a urinary calculus.

Figs. 5 and 6 exhibit the most important and frequent forms of organic deposits, observed in the urine in cancer of the bladder.

(The illustrations of cancer are partly obtained from the valuable treatise of Dr. Lambl, "Ueber Harnblasenkrebs. Ein Beitrag zur mikroskopischen Diagnoslik am Krankenbette mit 4 Tafeln. Prager Vierteljahrschr, 1856. Bd. 49, S. 1, ff.;" and partly the result of original researches of Dr. Julius Vogel).

Fig. 5.—A represents a large fragment of papillary formation of a "villous cancer" (Zottenkrebs) of the bladder, magnified 20-50 diameters.

B represents a terminal fragment of a "villous cancer," magnified about 200 diameters. The interior consists of an amorphous, fibrous ground-work and numerous elongated nuclei, covered externally with a layer of epithelial cells.

C represents isolated cells from the layer of epithelium of a "villous cancer"; they are usually caudate or branched, and contain a large nucleus.

D represents a "villous cancer" of somewhat different nature. An amorphous mass, which forms a warty excrescence and includes large nuclei. The epithelial layer is wanting.

Fig. 6, A.—Fragment of "a villous cancer," composed of fibrous (hollow?) cylinders, partially covered with an epithelial, layer of small, nucleated cells.

B represents an aggregate of cancer-cells, with large cell cavities, thick walls and nuclei, the latter are frequently enclosed in the cell-wall (B c). The cells are mostly united to form groups by means of an amorphous connective substance (B *a*) or appear isolated, as in (B *b* and B *c*).

C, fragment of an amorphous fibrous cancer-frame-work, with spindle-shaped nuclei and elastic fibres, on which rest larger cells (remains of the epithelial layer). They are, as in (*a a*) well preserved, or partially destroyed, as in (*b*).

D, isolated cells probably derived from the epithelial layer of a "villous cancer"; (*a a*) small, rounded nucleated cells, which are clearly colored red, and at first sight liable to be mistaken for blood-globules; they remain, however, unaffected by the application of acetic acid; (*b b*) large, irregular and partly caudate cells, upon which can be observed reddish nucleated cells.

ART. II.—SOME PRACTICAL REFLECTIONS ON THE NATURE, COURSE, SYMPTOMS AND TREATMENT OF FISTULES. By C. H. MASTIN, M. D., Mobile, Ala.

In the whole catalogue of surgical diseases, there is no one of more universal occurrence, or which presents itself more frequently to the observation of the medical man, than "Fistula," in one or another of its forms.

A disease which is incident to all classes of society; to all occupations in life; without respect to age, sex or condition; an affection from which no region of the animal organism is exempt; and one which offers to the professional student a wide range for observation and study, and an open field for thought and reflection.

A disease so common, that it seeks alike the advice of the general practitioner, as well as the attention and operative skill of the practical surgeon; often times a trivial affair, sometimes, a grave and serious malady; one which may only require the simplest treatment, yet not infrequently calling for the most complex surgical interference for its cure. It varies in degree from the simple suppurating "cul-de-sac" to the graver lesions of recto and vesico-vaginal fistulæ—so long the opprobium of operative surgery.

It may, then, not prove wholly without interest, if we investigate the pathological nature of *fistules*, and from any analysis of the affection, try and collect together the varieties, so as to establish a fixed and systematic classification, whereby they may be more easily and clearly investigated—the only course of study from which we can hope to deduce a valuable and rational method of treatment.

The term "*Fistule*" is derived from a Latin word, "*Fistula*" which signifies—a pipe, and. is a name used to designate an accidental track, developed as a canal, more or less straight and prolonged through the living tissues of the body; surrounded by a local and permanent alteration of the living structure, through which escape pus, the products of secretion, or other matters of various character discharged from natural reservoirs, or their conduits.

So varied are the forms of fistules, and so very widely different are their effects upon the animal organism, that it necessitates some notice of their wanderings to properly illustrate our subject. To do this in a concise manner, and at the same time correctly, the following classical quotation, from one of the earliest of our writers (Celsus) may not inappropriately be introduced, to cover the ground more perfectly than could otherwise be done.

Celsus writes: "Genera igitur fistularum plura sunt; si quidem aliæ breves sunt, aliæ altius penetrant; aliæ recte intus feruntur, aliæ multoque plures transversæ; aliæ simplices sunt, aliæ duplices, triplicesve, ab uno ore intus orsæ, quæ in tres aut etiam in plures sinus divedunter; aliæ flexæ et tortuosæ sunt; aliæ intra carnem desinunt, aliæ ad ossa vel cartilaginem penetrant, aut ubi neutrum horum subest, ab interiora perveniunt; aliæ deinde facile, aliæ cum difficultate curanter atque etiam quædam insanabiles reperiuntur." * * *

With such a diversity of form and shape—no portion of the body being exempt from their inroads—it becomes necessary that some definite and regular order of classification should be adopted, by which we may be better enabled to study and investigate fistules in their various forms and ramifications.

It is with that intention I now propose to give the general order of classification which covers the subject; to show the manner in which fistules are formed; to point out the different organs and tissues usually implicated; and thus to draw the means of diagnosis and mark out a line of treatment, based upon the pathological condition of the structure wherein they are located.

By adopting the classification of the French writers, the subject will be most fully illustrated, and much time and study saved in their investigation. Here it will be seen that with great convenience they may all be brought under the following *three grand heads*, each of which is susceptible of sub-division into especial forms.

The *first grand class* is composed of those fistules which open upon the surface of the body, but *do not* communicate with any of the natural cavities of the organism—being lost, as it were, in the general expanse of the tissues—they are simply "cul-de-sac," more or less deep, according to the nature of the structure in which they are located and the causes which produced them; and they offer to our observation several varieties, as for example: 1. Such as lead to artificial cavities, which have been the result of disorganization in the cellular tissue, of which the ordinary "cold abscess" is a good illustration; 2. Those which penetrate to the location of a foreign body, as a ball, fragment of shell, or particles of clothing; 3. The fistulous outlet from cavities or necrosed bone, disorganizing tendon, or cartilage; 4. Those which penetrate the parenchymatous structure of an organ, which is more or less altered in structure; as, for instance, where we find certain tubercles of the testicle which have advanced to the period of softening.

The *second grand class* comprise those fistules which open upon the surface of the body, *having penetrated* through an accidental opening *into a natural cavity;* as, for example, *one of the serous pouches.*

This class differs from the first on account of the nature of the cavity into which it has penetrated, which cavity may be one of the tendinous sheaths; one of the subcutaneous serous pouches, which are improperly called "bursæ mucosæ"; or they may open into one of these accidental cysts, often developed in the tissues of the body, and which become lined with an organized tissue, resembling a natural cavity. Again, they may penetrate to the articular cavities of the joints, or even enter into the great serous sacs, as the pleura, the pericardium, or the peritoneum. We may also with propriety place under this head those fistules of the cornea, opening, as they do, upon the surface of the cornea, and then plunging into the anterior chamber of the eye-ball, which is a serous cavity.

The *third grand class* embraces all those fistules which communicate with those natural cavities of the body which are lined by a *mucous membrane;* and for convenience of description, they must be subdivided into *three* divisions: 1. Those of the secreting and excretory apparatus; 2. Those of the digestive tube; and 3. Such as penetrate into the air passages.

Those of the excretory apparatus are most numerous and more important; for instance, we have fistules of the lachrymal apparatus, of the salivary, mammary, urinary, and biliary system. Their sinuses vary in respect to the points from which they take their departure; at one time they may leave the radicals of the excretory conduits, or they may penetrate far into the parenchymatous structure of the organs which furnish the secretion. Sometimes they spring from the ducts destined to bear away the fluids, or they may tap the reservoirs which hold for a time the secretions. Thus a mammary fistule may result from a wound or an abscess of the gland; a salivary fistule from a lesion of the duct of Steno or of Wharton; a urinary fistule may have its origin in the kidney, the organ of secretion; in the ureter, the duct of excretion; or in the bladder, the reservoir of deposit.

Those of the digestive system correspond to the same sub-division; here we have buccal fistules; fistules of the œsophagus, the stomach, the intestines, and the rectum. The digestive system being the grand inlet to the animal economy, through which all the articles necessary and requisite for its alimentation must pass, becomes, as a consequence, liable to more wear and tear than any other portion of the human organism; hence it is not surprising that we find fistulous lesions more frequently here than in any other portion of the body.

Whilst, on the contrary, we find those of the air passages—*the third sub-division*—much less frequent. Still, they do occur in every portion of the respiratory track. We see them in the maxillary sinus, the nasal fossa, the larynx, the trachea, and even in the lungs themselves.

A fact worthy of notice, is that in nearly every instance the fistules of the *third grand class*—having one extremity in a mucus cavity—extend the other to the *skin;* and, as a consequence, have two orifices; one mucus, the other cutaneous; yet there are some of these which have only one orifice, as is the case in certain rectal, urethral, and vaginal fistules; where the sinus wanders about in the cellular tissue until finally it makes its appearance again at another point upon the mucous membrane in the form of a complete fistule, both orifices being upon the mucous membrane. This may be exemplified also by those fistules which leave one cavity lined with mucous membrane, and penetrate into another of the same character—an example of which we have in a ranula forming in the sublingal gland and opening in the mouth; a biliary opening between the gall-bladder and the colon; a fistulous track between the mouth and the antrum highmorianum, or the nasal fossa; between the uterus and the intestines; the trachea and the œsophagus; or the kidneys and the lungs.

The track may be long and tortuous, or short and direct, as is observed in vesico-rectal fistula in the male; or the vesico-urethro, vesico-vaginal, or vesico-rectal in the female.

This classification embraces every variety, almost without exception, and offers the practical advantage of showing that *only* those fistules which are susceptible of treatment, or which come within the domain of practical surgery, are those which terminate upon the surface of the body, or which, in certain localities of the mucous membrane, are accessible to our fingers or instruments.

A most important lesson is here derived from their study, and one which it is impossible to separate from an accurate classification of their various forms, which is the pathological causes which produce and which give rise to the many varieties of the disease in question. Such, for example, are those which are consequitive of certain abscesses, those diagnostic of caries, necrosis, or tubercular engorgement of the testicle. Very different are those which spring from some natural cavities or excretory conduits, which are simply the result of local engorgement and suppuration, or perchance depending upon some functional disorders, or perhaps caused by the therapeutic agents which have been employed for their relief. These last require to be examined separately, as they may almost be considered as a special class, although when taken collectively, they must be treated under the one general head of Fistulæ.

Another general fact worthy of consideration in the examination of this subject, is that some fistules have *two openings*, whilst others have only *one*; hence it is we speak of *complete* and *incomplete* fistulæ, the latter being often designated *blind* fistulæ; and as they often open either externally or internally, they are called accordingly; "external blind" or "internal blind" as the opening may correspond with the external surface or the internal cavity.

We now observe that all those of the first grand class necessarily belong to those known as the "external, incomplete or blind"; whilst, on the contrary, those of the *second* grand class are always "complete," having passed from a natural cavity to the surface. However, in many of these cases the cavity from which they spring may resemble somewhat, owing to the altered condition of its surface and dimensions (the result of inflammation and suppuration), the morbid sac or cavity found in the *first* variety, which alone is the chief characteristic it possesses. Thus it is that they may be converted, in reality, into the condition of external blind fistulæ.

On the other hand, those of the *third grand class* may sometimes be *blind external, blind internal,* or *complete.*

In a complete fistule, we are led to examine its orifices, both internal and external, also the track or canal which unites them. We find in doing so that the internal opening, resulting from the perforation of either a mucus or serous cavity, is usually single, round and small, sometimes it is hid in a fold of mucus membrane, or it may be lost in one of the natural rugæ of the parts. The track of the sinus wanders irregularly through the tissues, or the substance of the organ which it perforates, being tortuous and twisted. It is sometimes, indeed frequently, on this account, impossible to introduce a probe from the external opening through the sinus into its internal orifice.

The external orifice is generally single, but it is not infrequently multiple; several openings existing, and sometimes they are crowded together, presenting a sort of cribriform appearance, not unlike the openings in the spout of a watering-pot.

We see this condition of affairs sometimes in the perineum, around the anus, and in the scrotum. Usually the external opening is small, and inferior in diameter to the track of the sinus, and is placed upon the summit of a fungus granulation, or it may be sunken in the centre of a circle of fibrous bands, which are white and glistening, giving to the spot a peculiar appearance, which is designated by the French writers—"cul de poulé," a translation of which would be less poetical than descriptive. Sometimes it is masked by soft vegetations, fungus granulations, or a tumid swelling. At other times it terminates upon the surface, in an ulcerous wound.

Blind fistulæ, or those which have only one orifice, may have that opening placed either external to the surface of the body or internal, within a cavity natural to the organism; the sinus being either a tuberculous excavation, or perhaps a purulent pouch, formed around a denuded tendon, a carious bone, a fragment of shell, or any foreign body.

Then again the length of the sinus requires investigation; in one instance it may be so short that it represents more frequently a simple opening than a true canal. Such appearances are presented by those lesions about the lachrymal passage, the larynx, the trachea, the frontal sinus, and by the majority of those which spring from, and discharge a sero-subcutaneous cyst; also those whose openings connect the bladder or urethra with the vagina or the vagina with the rectum.

In other cases we find the canal long and extended, as is the case in some of those sinuses which lead to cavities the result of abscess by congestion. Lastly, those lesions around the anus and urinary organs being more frequent than any others, present tracks which vary in length from a quarter of an inch, to one, two, three, or in some instances more inches. These tracks are straight or tortuous, frequently unique and simple, although often they are multiple. Sometimes arising from one opening, they sub-divide and reach the surface by different routes—an example of which is furnished by that variety of anal fistulæ known as the "horse-shoe fistula," which arises on either side of the anus, and after encircling the gut, seeks an outlet opposite the coccyx.

At one time they may join and mingle together, at another, divide and separate into wide ramifications.

Ordinarily they are straight, but their diameter is not uniform throughout their length; it is not infrequently the case that they are contracted by strictures in their calibre, or they may be enlarged into pouches and divertacula.

The pathological structure of fistules is somewhat peculiar; when they are well formed and permanently established, we find them lined by an abnomal membrane of firm innodular tissue, red in color, sensitive to the touch, resembling mucous membrane, but differing from this essentially in the absence of papules, of follicles, and epithelium cells; continuous at one extremity with the skin, at the other with the cavity which provides the secretions; intimately blended with the tissues through which it passes, and from which it is, often times, difficult to separate it. This new formation at the onset is composed of an areola and vascular net-work, suple, soft, firm in texture, yet easily torn. A little later in the progress of its formation, as also in established fistules, it becomes more solid, more compact and smooth, and is resistant and difficult to remove.

A marked characteristic of the old varieties, is that they are not generally sensitive; for we find that the contact of instruments or the injection of liquids produce very little if any pain.

At the onset a purulent fluid is secreted, which, after a short time, is changed into one more vicious, approaching the natural secretion of the mucous membranes; the formation of which membrane gives the sinus more the character of a natural conduit; thus protecting the tissues against infiltration or consequent irritation.

The tissues around the pathway are usually indurated, hard and callous; generally more so about the orifice, sometimes extending only into the canal for a short distance; but in this respect they are extremely variable; for we observe in certain cases that the fistulous track, as well as the cavity from which it springs, is lined with soft fungus vegetations; the bones near which it passes are denuded, carious, or necrosed. These are, however, accidental results, and are by no means general or usual concomitants of the affection—they are not essential phenomena of the disease.

The causes and manner of their formation require that an accidental opening should be first created through the organic tissues; it is not alone necessary that a simple opening be made, for this may contract adhesions, and union between its sides become established; but it is absolutely essential that either some morbid action should exist, or that the walls of the opening be placed in such a condition as will oppose the process of granulation, which is essential to cicatrization.

The conditions which oppose this reünion of surfaces vary. We observe where pus continues to flow from the walls of an abscess already passed into a chronic condition, that the orifice from which it exudes becomes irritated and ulcerating; it refuses to heal. Now, this same condition exists throughout the entire length of the canal or sinus, from the surface to the sac; its walls have become thinned, separated, and being unable to establish adhesive inflammation, an ulcer or a fistule becomes the consequence.

Certain regions of the body, rich in adipose and cellular tissue, abundantly supplied with lymphatic glands, bounded by fibrous and muscular bands, which are not easily reached, but which glide and change their position under the varied movements of the body, and which are exposed to phlegmonous or gangrenous inflammations, whereby portions of detached cellular tissue become entangled and block up the opening of exit for pus and other débris, give rise to cavities, more or less considerable in capacity, winding in form, with walls which are either separated or continuously rubbing together, thus preventing the process of healthy restoration and final union; these become the frequent seats of fistules. With such an unnatural disposition of parts, aided by the constant breaking down of the tissues which compose the walls of the cavity; the presence of denuded glands, tendons, and exposed bone, altogether conspire to form sacs, which hold the débris, and act as reservoirs which furnish the discharge. Under a state of affairs like this, it becomes almost impossible to thoroughly examine the nature of the lesion, and, as a consequence, from want of proper treatment, fistules of more or less deep and irregular form become the inevitable sequence. We see such a condition not infrequently around the anus, in the groin, or under the arm-pit.

On the other hand, where foreign bodies are lodged, such for instance as balls, fragments of shell, particles of clothing, spiculæ of bone, and such like articles, a circumscribed inflammation results, which gives rise to suppuration, with a discharge of pus from the cavity which contains them; and so long as these articles remain, the inflammation is kept up, pus continues to be secreted, and finding its way to the surface, the track or sinus remains open, and in course of time an adventitious formation takes place, and a fistule is the result.

In the same way we may explain the causes of those fistules which communicate with the excretory organs, either the digestive or the respiratory. These organs being continually exposed to the passage of foreign bodies; either in the form of nutriment; or the irritating qualities of their secretions; to the débris of materials used in alimentation; or the noxious matters which enter the animal economy along with the air in respiration, all afford fertile causes of disorganization of the organs themselves, or of their conduits; thus it is we see a fistule of the rectum, the result of an abscess which has been produced by impacted fæcal matter, or the enlargement of a fragment of bone which had passed the prima via, and then lodged in one of the rectal pouches; a fistula of the lachrymal sac, produced by the passage of an eye-lash through one of the puncta; becoming arrested in the lachrymal sac, it produces first an irritation, from which results *an epiphora*, then *a mucocele*, followed by active inflammation with suppuration, terminating in true " abscessus et fistula sacci lachrymalis."

Again, a fistula of the lungs, kidney, stomach, bladder or intestines may be the result of a wound or an abscess; the secretions natural to the organ, or the induced suppuration of active inflammation, finding an outlet through the artificial opening, prevents a closure of the canal, and in time it becomes lined with adventitious membrane, pathognomonic of such openings; the result is, a fistula is established. A biliary calculus arrested in its passage from the gall-bladder to the duodenum, causes inflammation, which, terminating in suppuration, will produce ulceration, and finally "a fistula biliosa" is established; an intestinal worm may perforate the bowel; a grain of sand, in its passage from the kidney to the bladder, becoming arrested in the ureter, blocks up that conduit; the urine behind constantly pressing upon it, dilates the canal, and the irritation of the calculus produces ulceration, the urine percolating into the tissues, lights up irritation, inflammation with consequent suppuration; abscesses form, from which result "fistula urinalis"; or in like manner a calculus escaping from the bladder may be arrested in the urethra, and like results become the consequence. Similar results take place where the natural conduits are lessened in calibre, either from external pressure or when they are strictured within the tube; an example is furnished where perineal fistula is produced by a stricture of the urethra; artificial anus, the sequence of disorganization of the intestine in strangulated hernia: undue pressure upon a part may cause gangrene, sloughing, with loss of substance, as we see in a vesico-vaginal fistula, which has been produced by the pressure of the fœtal head upon the vesico-vaginal septum in protracted labor, or perhaps by the attrition of a cystic calculus in the bas fonde of the bladder.

Other causes, such as an abscess formed in the wall of a conduit, or in tissue which surrounds it, may by their presence close up the canal, and as the process of suppuration becomes fully established, a communication in the form of a fistula is formed.

A coärctation of the lachrymal canal, at the location of the valvule of Béraud,* may arrest the tears in their passage to the nasal cavity, and the pent-up fluid incite an inflammation of the duct, which will result in a lachrymal fistula.

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* This valvule has, within the past few years, been described by M. Béraud. I am not informed whether it has as yet been placed in any of the concise works on anatomy. It is simply a thin duplicature or fold in the mucous membrane lining of the lachrymal sac, at the commencement of the nasal duct. M. Béraud designates it "the inferior valvule of the lachrymal sac," in contra-distinction to the "superior valvule," which had previously been described by M. Huschke.

M. Nélaton particularly invites attention to the existence of this valvule, and believes it has anatomical points of practical utility in regard to the obstructions to which this duct is liable; he considers it a sort of regulator of the flow of tears.

Occasionally the ducts, or their reservoirs themselves, are opened by the progress of an abscess—cancerous tumors may soften and ulcerate through a thin wall which separates two mucous cavities, as is seen in certain ulcerations which break down the vesico-vaginal, and the recto-vaginal septa.

It is rare, indeed, that a fistula remains for any length of time without causing more less action upon the surrounding parts; they become changed, new tracks are formed, other orifices become established, a total change in the tegumentary and cellular tissue takes place, and a hardness and resistance equal to scirrhus is the result.

Not infrequently inflammation of a violent character is lit up, which pervades the fistulous track and propagates itself to the tissues which environ the organ, giving rise to suppuration and gangrene of the soft parts, with denudation, exfoliation, necrosis, and caries of the osseous structures.

The symptoms which mark the existence or approach of a fistule are variable, and by reference to the causes which produce them, we see that they are the result of one of two conditions; either *a wound*, which has penetrated a natural cavity; or they may be produced by *a pathologieal condition*, the result of an abscess of the soft parts, caries or necrosis of bone, softening of a tumor, breaking down of a cancerous tubercle, or gangrene of a knuckle of strangulated intestine, or perhaps a retrecessment of an excretory conduit.

In the first case, that of a wound, the fistula is established without a prodrome; in the second, we have presented the symptoms usual in irritation, inflammation, and suppuration, which are, however, modified in character, as to pain, the appearance and duration of the discharge, according to the location or the organ affected.

ECLECTIC DEPARTMENT.

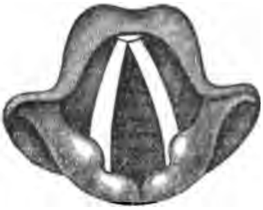
"Carpere et colligere."

ART. I.—CERTAIN NERVOUS AFFECTIONS OF THE THROAT. By CLINTON WAGNER, M. D., Physician to the Metropolitan Throat Hospital, late Clinical Assistant Hospital Diseases of the Throat, London, etc., etc. [Read before the New York Neurological Society, September 7, 1874.

Mr. President and Gentlemen,—The subject of the first part of the paper I have prepared for this evening's reading, "Functional Loss and Impairment of Voice," has long been recognized by writers on the practice of medicine; but since the discovery of the laryngoscope, extraordinary strides have been made in our knowledge of its pathology and proper treatment. Of the writers of the pre-laryngoscopic period, whose works contain interesting articles on the subject, I might mention Good, Graves, Parr, Copeland, and many others; whilst, of the numerous ones who have written, with the additional knowledge the laryngoscope has given us, Türck, Mackenzie, and Gerhardt stand preëminent. I shall first tax your patience with the recital of the histories of a few interesting cases occurring in my own practice, after which I will consider the subject more in detail.

CASE I.—Hysterical aphonia, six months' duration, cured by two applications of electricity.

Miss E., aged 12 years, sent me for treatment by Dr. Hammond; complete aphonia.



Case 1.

Her father stated that, six months previously, she awakened one morning voiceless, although she had retired the night before in good health. She was of a very nervous, excitable, timid temperament, which induced me to regard the aphonia as of hysterical origin.

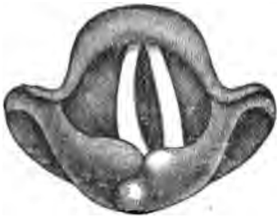
Nitrate of silver on a sponge probang had been used frequently before she was brought to me, but without producing any good result.

A laryngoscopical examination revealed paralysis of the adductors. I applied the constant current to the vocal cords by means of Mackenzie's electrode. One application restored voice, but the power of modulation was lacking; the second application, made the following day, restored perfect voice.

At the present time (four months after treatment) she has had no return of the trouble.

CASE II.—Paralysis of left cord adductor, four years' standing, cured by five applications of electricity.

Mrs. R. K., aged 28 years, applied for treatment at the Metropolitan Throat Hospital. She stated that since a child of about twelve years of age she has had attacks of hoarseness. About four years ago she lost her voice, and since then has not been able to speak above a loud whisper.



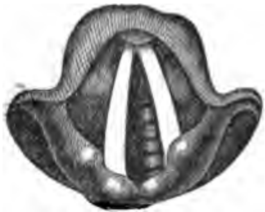
Case II.

An examination with the laryngoscope showed paralysis of the adductor of the left cord. Upon attempted phonation, the cord did not come to the centre, and the capitulum santorini of the right arytenoid was drawn beyond the median line, and in front of the left arytenoid. Heart, lungs, and uterus seemed to be unaffected. Five applications of the interrupted current from a farradic battery restored voice.

CASE III.—Dysphonia in scrofulous child.

Maria L., aged 9 years, sent me for treatment by Dr. Herzog. This child was anæmic, and very undersized for his age; of a strumous diathesis. His father informed me that several months previous he had first observed the affection of his voice, The little fellow spoke in a very hoarse tone, running into a shrill falsetto, with loss of power to modulate, and at times completely uphonic.

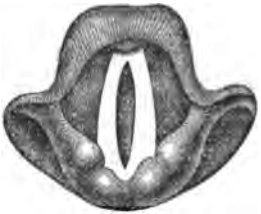
The laryngoscopic examination revealed imperfect action of the adductors of the left side, sufficient to interfere with the vibrations of the right, thus accounting for the falsetto pitch.


Case III.

Quinine and iron were ordered internally, with inhalations of creasote. Electricity applied several times. His father was compelled to leave for his home in the West, and the little fellow was under my treatment for a few days only. The case is merely mentioned on account of the extreme youth of the patient, the youngest I have ever seen with paralysis of the vocal cords.

Case IV.—Paralysis of tensors from overstraining the voice in singing.

Miss ——, aged 28, consulted me July, 1873, at the suggestion of Dr. Marion Sims. She stated that three years ago, after an attack of acute inflammation of the throat, she experienced, while taking her music lessons, a peculiar dryness of the fauces and weakness of the voice as the lesson progressed. She complained to her teacher of the trouble, who, however, urged her to continue singing, insisting on her practicing at least an hour daily, declaring that "exercise was all her voice needed."


Case IV.

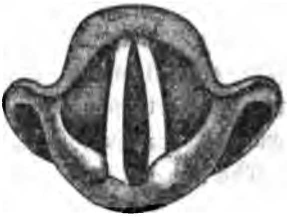
To quote her own language: "He was annoyed when I sang feebly, and said that my singing well at the commencement of the lesson was a proof that I could produce stronger tones if I would exert myself." At the end of nine months she could no longer trill, and felt that her throat was daily growing worse. She discontinued her lessons for nearly a year, and was treated during that period by frequent applications of caustics on a sponge probang. Considering herself cured, she accepted an engagement in a choir. For a short time she had but little difficulty in performing her part; but one day, upon being urged by the leader to make a greater effort, severe pain suddenly ensued in her throat, and she fainted. From that time all voice for singing was lost to her.

An examination with the laryngoscope discovered congestion of the vocal cords, with general hyperæmia of the mucous membrane of the larynx. Both vocal cords were relaxed. Particularly was this observable upon attempting the middle and higher notes, when the level appearance of their plane seemed to be destroyed. The trouble in this case, as could be plainly seen, was in the muscles which give tonicity to the cords, brought about by overstraining in attempting to reach the higher notes, and also by too prolonged effort.

She was under my treatment many months. My first object was to relieve the local congestion. This was accomplished by applications of the milder astringents, perchlor. iron, zinci sulph., etc., with inhalations of the same, and the local use of medicated spray from compressed air. Later, the constant current was employed daily at first, and less frequently as the improvement became the more marked. Iron and quinine were given internally. In July she wrote me: "I have quite recovered my health. I can trill, and my voice has regained its power, strength, and sweetness."

CASE V.—Paralysis of left tensor, from same cause as Case IV.

Mr. K., aged 27, a professional singer and leader of a church choir, was brought me for treatment by Dr. Frank Reynolds, U. S. A. Mr. K.'s voice is tenor, and before it became impaired, he could sing to B; he stated that for several months his voice had been failing him, and at the time of consulting me he had abandoned singing, and could scarcely maintain an ordinary conversation on account of the distress and pain using the voice occasioned him.



Case V.

A laryngoscopic examination discovered a relaxed condition of both vocal cords, especially the left, which wavered upon phonation and did not quite come to the centre; there was also a slight congestion of the cords, and a relaxed condition of the fauces. Astringents were at first employed to relieve the congestion, after which electricity was applied three times a week for three weeks.

Under date of August 25th, he writes me that he has quite recovered his voice and sings as well as ever, without the slightest difficulty.

We come next to the consideration of the causes of functional loss or impairment of voice.

Hysteria.

Violent mental emotions from fright, joy, or grief.

General debility.

Catarrh.

Overstraining the voice in singing, loud talking, or prolonged exertion.

Reflex causes.

Mechanical causes.

Poisons.

Sound is air in motion obstructed, or air stationary put into motion by an elastic substance.

Articulated voice, then, is the sound produced by air forced through the narrow rima glottidis, causing rapid vibrations of the true vocal cords, and converted into words or speech by aid of the palate, tongue, and lips, and that portion of the brain which is concerned in the expression of ideas. During quiet breathing the parts are open, but in inspiration the true cords are widely separated; in phonation they are drawn closely together.

The muscles of the larynx may be divided into three groups—viz., the adductors of the vocal cords or closers of the glottis, the adductors or openers, the tenors and laxors of the vocal cords.

If from any cause the action of any one of these muscles is impaired, it will, in proportion to the degree of disability, make itself manifest in the voice-producing power of the patient.

There may be complete aphonia, or mere weakness of the voice, as shown in the inability to read aloud for any length of time, or for public speaking or only slight hoarseness, or nothing may be appreciable in the tone of the voice when used for ordinary conversation; but, on attempting to sing, it will be found impossible to ascend or descend the register from loss of one or more of the lower, middle, or higher notes.

In paralysis of the adductors, approximation is impossible, and a greater or less space is observed between the cords on attempted phonation.

In paralysis of the arytenoideus transversalis, there is a triangular space left between the cords at the posterior commissure.

In paralysis of the adductors, voice is not so much interfered with; the dyspnœa, however, is a very prominent symptom, and the case may at any moment terminate fatally from spasm of the glottis; it is not of very frequent occurrence, and is nearly always of centric origin, and will not consequently be dwelt upon in this paper.

In paralysis of the tensors, the cords seem to be relaxed and flabby, and to waver in the centre upon phonation; the plane of the surface is also destroyed; the voice is lowered in tone, and lost for the higher and middle notes in singing.

In paralysis of the laxors, the cords appear rigid and of greater length, the voice is shrill and sharp, with loss of the lower notes in singing.

Local motor paralysis may depend either on a central lesion of the brain or spinal cord, or on an abnormal condition of a particular nerve in some part of its course. In functional aphonia, we must look to the latter, in many of its varieties, for a solution of the cause.

We will find, however, in some cases, that the laryngoscope reveals nothing abnormal, and the true cause consequently remains in obscurity; particularly is this the case in what is known as hysterical aphonia, which takes place suddenly, and after a longer or shorter period the voice may reäppear quite unexpectedly, without the agency of any special treatment; it generally attacks delicate, nervous women, although it is not confined to that sex; it may coëxist with other symptoms of hysteria, or they may be entirely wanting; in some cases there are intermissions, that is, the voice may return only to disappear again, after a brief period, without appearant cause.

According to Gerhardt,* Gibbs,† Trousseau,‡ Romberg,§ Niemeyer,|| and others, no morbid condition in the majority of cases can be discovered upon laryngoscopic examination.

Mackenzie,¶ however, considers hysteria as one of the most frequent causes of paralysis of the adductors, Niemeyer☞ designates this variety as "psychical palsy," and says: "In this affection, the excitability of the peripheral nerves is manifestly retained, and its dependence upon nutritive derangement in the motor centres is in the highest degree improbable. On the other hand, psychological influences have so marked an effect upon the appearance and disappearance of hysterical palsy, and especially of hysterical aphonia, that we may almost with certainty ascribe its origin to that portion of the brain concerned in the function of the higher psychical acts."

In my opinion, while there is a large number of cases of hysterical aphonia in which the laryngoscope will reveal a true paralysis of the adductors of the vocal cord, and still many in which nothing can be observed, there are also cases where there seems to be a want of coördinating power in the movements of the muscles necessary for voice formation.

In aphonia arising from violent emotional causes, as fright, joy, or grief, the cause has its origin in the brain, and not in the apparatus of voice—the same exciting causes which produced it has been known to restore it.

General debility from constitutional causes—Phthisis Pulmo-

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* Virchow's Archiv, vol. xxi.

† Diseases of the Throat. Gibbs.

‡ Clinical Medicine. Trousseau.

§ Nervous Diseases. Romberg.

|| Text-Book of Practical Medicine. Niemeyer.

¶ Mackenzie on "Hoarseness."

☞ Op. cit.

nalis.—I have frequently observed dysphonia in the early stages of this disease, in which the laryngoscope revealed neither thickening nor ulceration. Deposit in the apex of the right lung or the thickening or shriveling from pleuritis may produce paralysis of the right adductors from pressure upon the right recurrent. In some cases, weakness or slight huskiness of the voice is the first symptom of phthisis pulmonalis et laryngea, even before any morbid condition is discoverable by the aid of the laryngoscope or upon auscultation and percussion.

Syphilis.—Diday[*] describes a syphilitic aphonia without lesion, which supervenes between the third and sixth month from the appearance of the first symptoms. It commences without pain or precursory symptoms.

Mackenzie[†] relates a case of incurable dysphonia from paralysis of the adductors of the left vocal cord, in a syphilitic subject. The patient previously had had extensive ulceration of the throat and soft palate.

Hutchison,[‡] in enumerating the nervous affections following syphilis, does not mention aphonia or dysphonia.

In my own practice, I have never met with a case of impaired voice in a syphilitic subject, which could not be explained by the presence of congestion, thickening, or ulceration of the mucous membrane of the larynx, or tumors, or condylomata.

In the case reported by Mackenzie, I think we might find an explanation of the paralysis in reflex action, from the cicatrices left by the ulcers, in the same way that loss of voice is attributed to hypertrophied tonsils, tumor of pharynx or soft palate; for the motor nerves of the velum, arches, and tongue are all concerned in the production of voice.

Scrofula, chlorosis, cholera, may be accompanied with loss or impairment of voice. In those cases we can attribute the cause only to a deficiency of nervous force of energy. A paralytic condition of the cords may be observed, but it is by no means an invariable accompaniment. In Case III. we have paralysis occurring in a very young subject of strumous diathesis.

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[*] Gazette Médicale de Lyons, vol. xii.

[†] Op. cit.

[‡] Reynolds' System of Medicine, vol. i.

Catarrh.—The aphonia accompanying acute laryngeal catarrh does not come within the province of this paper; but I will briefly refer to a class of cases in which aphonia or dysphonia remains after the inflammatory condition has been cured. Long before the introduction of the laryngoscope into practice, the condition was recognized by Graves,* and I can do no better than quote his language:

"A boy gets cold, followed by sore throat and feverish symptoms, which may last for a few days and then disappear under aperient medicines, perhaps without any interference on the part of the parents or physician.

"The feverishness and sore throat subside, but the hoarseness remains, and the boy can speak only in whispers. This condition may last for weeks, and even months without any other symptoms whatever. The patient has no cough or difficulty in breathing; sleep aud digestion natural, and there is no appearance of emaciation. The only thing amiss is impairment of voice.

"When you examine the fauces, there is no appearance of inflammation in the mucous membrane, and there is no superficial or deep-seated tenderness in the region of the larynx.

"It depends on a relaxed condition of the vocal cords, and perhaps the muscles of the larynx, the result of inflammation of an exceedingly chronic character, and will not be benefited by leeches or antiphlogistics or low diet."

This relaxed and weakened state of the vocal cords arises from paralysis of the tensors, *crico-thyroids*, and is frequently met with in daily practice.

The aphonia or hoarseness which sometimes follows exposure of the uncovered throat to cold or wind is probably owing to paralysis of the external branch of the superior laryngeal, which supplies the cricothyroid muscles. This variety may be compared to the facial paralysis of the portio dura of the 7th, produced by a similar cause.

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* Graves' Clinical Lectures, 1842.

Overstraining of the voice by loud talking, reading, public speaking, or singing, by attempting an unnatural pitch, sometimes results in sudden loss of voice, hoarseness, or inability to sustain it for prolonged effort. In singing, there may be a loss only of one or more of the higher or lower notes.

The difficulty arises from paralysis of the laxors or tensors. The action of these muscles may be exemplified in a very simple manner. Whilst phonating, press with the finger upon the Pomum Adami. The cords are at once relaxed, and the tone of the voice is lowered; remove the finger and the voice regains the higher key. Pitch of voice, therefore, is brought about by increasing the tension of the vocal cords. Too great an effort to sustain this condition may result in an exhaustion of nerve force, hence paralysis.

We are told by Plutarch that Gracchus lost his voice suddenly in this way whilst delivering an oration, and that it sunk into a feminine treble. In Case IV. we have an illustration of the unpleasant result that is apt to follow the attempt to carry the voice to an unnatural pitch in singing.

Reflex Causes.—Uterine displacements or derangements, probably from direct irritation of the uterine filaments of the par vagum, obstructed periodical discharges, inhalation of poisonous exhalations, irritation of the gastro-intestinal tract. Good* mentions that eating poisonous mushrooms has produced it; any cause which irritates or disturbs the spinal accessory, pneumogastric or its recurrent laryngeal branches.

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* Good's Study of Medicine.

NOTE.—In the New York Medical Journal for May, 1874, Dr. Pooley, of Yonkers, reports a very interesting case of two aneurisms, one of the arch or descending aorta, the other of the arteria innominata. There was paralysis of the left side of the larynx, with narrowing of the trachea.

The aneurism was not detected during life, although its existence was suspected and frequent examinations were made, no bruit could be heard.

Mackenzie relates a very similar case in his work on "Hoarseness."

Mechanical Causes.—Pressure upon the pneumogastric from goitre, enlarged cervical or bronchial glands, aneurism of the arch of the aorta pressing upon the left recurrent laryngeal, or of the right subclavian upon the right recurrent, tumor in pharynx or soft palate or laryngeal growths.

In laryngeal growths, the impairment of voice will depend upon the size and position of the growth. If it hangs below the cord there may be only hoarseness; if between them, the voice may be altogether lost or become falsetto; if it rests upon the surface of the cord the change of voice will be slight.

The voice of boys on arriving at puberty undergoes a change, from the rapid growth and development of the larynx. There may be only a slight hoarseness from the physiological congestion of the parts, interfering with the finer vibrations of the vocal cords, or the voice may assume and retain a shrill, piping falsetto tone. An examination of these cases with the laryngoscope will reveal an impairment of action of one of the vocal cords, generally the adductor of the left, which is prevented from coming to the median line.

Poisoning from lead, arsenic, or mercury, or diphtheria, may give rise to aphonia from paralysis of the adductor. Christern relates three interesting cases of aphonia from poisoning by arsenic. Lead poisoning is more common.

Treatment.—In simple uncomplicated functional aphonia or dysphonia, local remedies which bring about a reflex contraction of the muscles of the larynx concerned in voice production will be found in many cases all that is necessary to accomplish a cure; particularly is this the case in the aphonia of hysteria: electricity applied directly to the vocal cords in this variety rarely fails to restore the voice.

In over two hundred cases of paralysis of the adductors treated by Mackenzie, all but four recovered voice through the agency of this remedy.

Solutions of nitrate of silver, perchlorid. iron, cupri sulph., zinci sulph., varying in strength from ʒ ss. to ʒ ii. to the ounce, applied with the brush, or inhalations of the same through the steam atomizer or in form of spray produced by compressed air are very useful in cases in which there is congestion of the mucous membrane of the cords and adjacent parts. Vapor inhalations of the ol. fol. pini sylvestris, creasote, or ol. junip. anglici, are serviceable in cases of dysphonia from a relaxed condition of the vocal cords.

When the aphonia depends upon or exists in connection with an inflamed condition of the mucous membrane of the larynx, the remedies enumerated above should be employed, but if the condition does not exist, the sheet-anchor in the treatment is electricity, and time is lost by resorting to other means of treatment.

This agent is not a new one in the treatment of aphonia. In the year 1800, Grapangieser, of Berlin, applied it to the neck, but Mackenzie has the credit of having first applied it to the mucous membrane of the larynx, over the paralyzed muscle. A band is fastened around the neck, to which one pole is attached over the thyroid cartilage, the other to a metallic sound bent at the proper curve and passed over the epiglottis into the larynx by aid of the laryngoscope. I think it immaterial whether the negative or positive pole is introduced into the larynx.

I generally employ the constant current from a twenty-cell battery, but never use more than from four to eight cells for internal application. In cases of long standing, I have sometimes employed the interrupted current from a faradic battery, and have in such cases obtained more decided results from it than from the constant current, probably owing to the greater muscular excitation produced. In regard to pain, the patients complain of the constant as more severe.

Other means of treatment have been tried with success. Bruns has cured cases by introducing a mirror and causing the patient to utter vowel sounds and then combining them with consonants.

The mere introduction of the mirror has been known in hysterical cases to restore the voice.*

Oliver,† of Boston, has proposed manipulation of the larynx in certain forms of paralysis of the vocal cords, by pressing with the thumb and forefinger upon the superior cornua of the thyroid cartilage and letting the patient take a deep inspiration. He has reported a number of cases of cure by this method, and others who have tried it speak favorably of it. In several cases in which I have practiced it, I did not succeed in overcoming the paralysis.

In cases of aphonia arising from the pressure exerted by goitre upon the pneumogastric nerve, treatment must be directed toward the reduction of the gland.

In reflex aphonia from tumor in pharynx, or soft palate, or enlarged tonsils, the proper operative measures should be resorted to. In displacements of the uterus, voice has returned immediately upon the restoration of the organ to its proper axis.

In paralysis from lead, iodid. patass. in large doses, and sulphur-baths, will be found necessary in connection with electricity.

In regard to the early treatment of impairment of voice occurring in singers and public speakers—such cases, for instance, as that of the young lady, Case IV., who was so badly advised by her music teacher in regard to practicing—the physician should insist above all things upon absolute rest of voice for weeks or even months, at the same time employing locally the mild astringents to relieve the congestion, after which the constant current.

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* Diseases of the Larynx. Holmes' Surgery, vol. iv.

† American Journal Medical Sciences. 1870.

LARYNGEAL NEURALGIA.

Neuralgia of the larynx is occasionally met with as a true neurosis, and independent of any other morbid process in the same individual.

The pain, which is at times intense and agonizing in its character, is felt along the thyroid cartilage and anterior part of the neck, the nerves implicated being the superior and inferior laryngeal, especially the former.

There is also at times a feeling of oppression or choking, the voice is weakened and the pain increased when the least exertion of it is made.

This affection has been described by Graves,* Gibbs,† Handfield Jones,‡ and Türck.§ The latter mentions that it may accompany a prolonged laryngean catarrh or phthisis, but states also that the laryngoscope throws no light upon the pathology of the disease. The cases that have come under my own observation have all been individuals of a broken-down, enfeebled constitution, and I think it should be classed among the superficial neuralgias which Anstie describes as "excited by anæmia or malnutrition."

Graves relates an obstinate case which finally yielded to large doses of the carbon. ferri. Gibbs has found the bromide of ammonium in large doses very useful.

The treatment I have found most successful has been large doses of tinct. iron and quinine, and insufflations of acid tannic and morphia into the larynx. Aconite liniment over the seat of pain gives temporary relief. Counter-irritation from blisters, or tinct. iodine, have been recommended. Hypodermic injections of morphia are also useful. Electricity in the form of the faradic current, in the few cases I have employed it, has had the effect of increasing the pain from the muscular excitation it produces, and the constant current in my hands has failed to give the relief claimed for it by others who have used it.

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* Op. cit.

† Op. cit.

‡ Functional Nervous Diseases.

§ Krankeiten des Kehlkopfes.

NEURALGIA OF LARYNX.

Mr. N., aged 28, actor, consulted me Sept., 1873, at the suggestion of Dr. Mackenzie, for a severe chronic catarrhal laryngitis of long standing. He was compelled to discharge the duties of his vocation almost without interruption, which necessarily rendered the treatment tedious. In December I discharged him cured, and in the following month he started South on a professional tour.

A few weeks later, while in Savannah, he was attacked with severe pain in his larynx, for which he consulted a practitioner of that city, from whom he obtained no relief. Upon his arrival in New Orleans, the pain had increased to such an intensity that he was compelled to relinquish his engagement for the time. He returned to New York, and again placed himself under my treatment.

He complained of a constant dull, aching pain, extending along the sides of the thyroid cartilage, and a tickling, uneasy feeling at times at the Pomum Adami. His voice was weak, and the pain was increased greatly upon any attempt being made to exert it. He was much broken down in general health, and suffered from dyspepsia. A laryngoscopic examination revealed nothing but slight congestion of the mucous membrane covering the arytenoid cartilages, and the aryepiglottic folds, by no means sufficient to account for the pain and voice weakness.

I applied locally perchlor. iron, ʒi. to ℥i., and internally tinct. ferri. mur., gtt. xxx., quinine sulph., grs. v., three times daily, and occasionally the local application of liniment aconite over the seat of pain.

Under this treatment he improved, and left the city within three weeks to rejoin his company. He returned about June 1st, greatly improved in general health and quite free of pain.

In this case I tried the constant current, but obtained no satisfactory results from its application.

NERVOUS SORE THROAT.

There is still a class of cases of sore throat very frequently occurring in practice, difficult to diagnosticate, and still more so to treat satisfactorily.

In nervous sore throat, dysæsthesia, or hyperæsthesia of the throat, as it has been called by different authors, the patient complains of pain or soreness involving the tonsils, pharynx, and pillars of the soft palate; it may be on both or confined to one side, increased in swallowing, with a sense of constriction and at times of suffocation, as if a foreign body was lodged there; desire to cough, with a tickling sensation, accompanied with dryness and other disagreeable symptoms difficult to describe in words.

The general health is impaired from a prostrated or perturbed nervous system, or the patient may be afflicted with some chronic organic disease, the usual symptoms of which may be absent or masked by those I have just described; at all events, the source of all trouble is ascribed by the patient to the throat.

One would naturally expect to find serious trouble, or at least evidences of inflammatory action, with such symptoms as I have described. An examination, however, will reveal nothing sufficient to explain the cause of the patient's sufferings. The mucous membrane of the fauces may appear relaxed, and in color pale and anæmic, the larynx normal. Instead of the dry, glazed membrane found in pharyngitis sicca, and which we would expect from the dryness complained of by the patient, there is no lack of mucus secretion visible to the eye.

The voice is weak, and any attempt at prolonged use is attended with pain and a feeling of utter inability for the effort.

The following case is illustrative of this form of sore throat existing simultaneously with an organic disease:

CASE I—NERVOUS SORE THROAT.

Mrs. ——, aged about 55, a short, stout, plethoric woman, married, and the mother of a large family, consulted me early in December, 1873, at the suggestion of Dr. Marion Sims. Her symptons were as follows: Pain in the region of the posterior columns of the palate, left side; constriction in pharynx, increased in swallowing; dryness, at times dyspnœa; but the most annoying symptom, and the one which seemed most to distress her, was that which she described as a worm, moving and constantly wriggling itself in her throat. The fauces, with the exception of a slight pharyngitis with thickening of the mucous membrane, presented the appearance of health, and a laryngoscopic examination revealed nothing but a slight venous congestion in the fossa between the base of the tongue and the epiglottis, by no means sufficient to account for her peculiar symptoms.

Applications of strong mineral astringents, with inhalations of the same, seemed to give her great relief for several days at a time. In what way they produced their effect, I am at loss to explain.

I have already stated that organic disease was sometimes present in these cases, but not always recognized in the early stages by reason of the prominence of the throat symptoms.

In this patient, fatty heart was subsequently developed, for which she has been treated by her family physician. As the cardiac symptoms became more prominent with the advance of the disease, the throat trouble subsided, and she has since declared that it gave her no further annoyance. In this case, the throat symptoms probably arose from irritation of the cardiac filaments of the pneumogastric.

It sometime accompanies hysteria, as shown in the following

CASE II. OF NERVOUS SORE THROAT.

Miss ——, aged about 32, tall and of spare habit, of a delicate nervous organization, anæmic and very much debilitated, consulted me in February last, recommended by Dr. Hammond, under whose treatment she was for hysteria and irritation of the upper portion of the spinal cord. She complained of an almost constant pain, not of a very severe character, but sufficiently so to be annoying, increased upon swallowing or in the attempt to exert her voice. It was chiefly on the right side. There was no evidence of phthisis, but she feared the trouble arose from that cause.

Excepting a relaxed condition of the mucous membrane of the fauces and very slight thickening of the membrane covering the arytenoid cartilages, I could discover nothing specially requiring treatment.

Local application of iron in the form of spray and morphia upon the brush gave great relief. Anodyne and soothing inhalations were also ordered. I attribute the final cure in this case to the disappearance of the hysteric symptoms and spinal trouble under Dr. Hammond's treatment, and I have no doubt that the peculiar throat symptoms in her case arose from an irritation of the spinal accessory nerve.

I last saw her several weeks ago. Her throat appeared perfectly healthy; declared it gave her no further trouble, and local treatment was discontinued.

Of the pathology of this affection nothing is known. I think it not unlikely that that portion of the glosso-pharyngeal nerve which supplies the tonsils, soft palate, and pharynx, is at fault. The pain is always referred to these parts, and the sense of constriction, which is so annoying, points to the implication of the muscles of the pharynx supplied by this nerve.

Treatment.—The general health must be improved; tonics, generous diet, and change of air. If the patient has lived in the damp sea air of the coast, a change to a dry mountainous region will be found beneficial, and *vice versa.*

Local applications should be of a mild, soothing character. I have derived much benefit from morph. sulph, grains viij. to

℥i., and applied by means of the brush to the parts complained of; also sprays of the same, or weak solutions of zinc or iron. —*N. Y. Med. Jour.*

NOTE.—I am indebted to my friend, Dr. Geo. M. Lefferts, of the Metropolitan Throat Hospital, for the drawings from which the accompanying illustrations have been taken.

ART. II.—ON NÉLATON'S METHOD OF RESUSCITATION FROM CHLOROFORM NARCOSIS. [Read at the Forty-second Annual Meeting of the British Medical Association, held in Norwich, August, 1874.] By J. MARION SIMS, M. D., Surgeon to the Woman's Hospital of the State of New York.

Dr. Charles James Campbell, the distinguished accoucheur of Paris, has recently written two papers on anæsthesia in obstetrics,* in which he ably sustains the views long taught by Nélaton, that death from chloroform is due to syncope or cerebral anæmia. And amongst other strong arguments to prove his position, he gave a graphic description of a case of chloroform narcosis which occurred in my practice in Paris, where M. Nélaton, by his method, unquestionably saved the life of the patient. She was young, beautiful, accomplished, and belonged to one of the best families in France. Married at twenty, she gave birth to her first child a year afterwards. The head was enormous (hydrocephalic), impacted in the pelvis nearly twenty-four hours, and the delivery of a dead child was ultimately accomplished with instruments. Dr. Bouchacour, of Lyons, was called in consultation, and applied the forceps. In a week afterwards, the urine began to dribble away, and in a fortnight an immense slough was thrown off. The case, surgically considered, was one of the most interesting I ever saw, and the operation was one of the most difficult I ever performed on any one in her station in life. The base of the bladder was destroyed, and the fundus fell through the fistulous opening; it was therefore inverted, and protruded between the labia majora as a herniary mass of the size of an apricot, its external covering being the internal or lining membrane of the bladder, which was of a deep vermillion red color. The vaginal portion of the cervix uteri and the posterior cul-de-sac were destroyed; and by the reparative process, the cervix and the posterior wall of the vagina were blended into one common cicatricial mass, which was firm, inelastic, and immovable. The case appeared desperate, and M. Nélaton had pronounced it incurable. A preparatory operation was necessary—viz., to open the cervix uteri, by dissecting it from the posterior wall of the vagina, and thus to reconstitute the canal of the vagina up the canal of the cervix; and by a subsequent operation, to draw forward the flap thus formed, secure it to the neck of the bladder anteriorly, and thereby close the fistula. The first, or preparatory operation, was performed at the country-house of the family, near Dijon, on November 3, 1861, Dr. Dugast, of Dijon assisting and giving chloroform. The second, or operation for the radical cure, was performed on the 19th of the month at St. Germain, about an hour's distance from Paris by rail. M. Nélaton, Dr. Campbell, Dr. Beylard, Dr. Johnston, and Mr. (now Doctor) Alan Herbert, were present. I seldom give an anæsthetic in private practice for operation on the walls of the vagina, as the pain is generally not sufficient to call for it. But in this case, as the slightest touch was unbearable, an anæsthetic was indispensable. Dr. Campbell was selected by the family, as well as by M. Nélaton and myself, to administer the chloroform, especially as he was in the daily habit of giving it in his large obstetrical practice, and we all had entire confidence in his caution, skill, and judgment. The patient was anæsthetized. The operation was begun at 10 A. M., and I thought it would require about an hour to finish it.

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* 1. Mémoire sur l'Anesthésie Obstetricale; 2. Etude sur la Tolérance Anesthésique Obstetricale, par le Dr. Charles James Campbell, Ancien Interne de la Maternité de Paris, Ancien Chef de Clinique Obstetricale de la Faculté de Paris. G. Masson. 1874.

Many years ago I imbibed the convictions of my countrymen against chloroform in general surgery, and have always used ether in preference, never feeling the least dread of danger from it under any circumstances. It is otherwise with chloroform, and in this particular case I felt the greatest anxiety, frequently stopping during the operation to ask Dr. Campbell if all was going on well with the patient. At the end of forty minutes the sutures (twelve or thirteen) were all placed, and ready to be secured, and I was secretly congratulating myself that the operation would be finished in a few minutes more, when all at once I discovered an unusual bluish livid appearance of the vagina, as if the blood were stagnant, and I called Dr. Johnston's attention to it. As this lividity seemed to increase, I felt rather uneasy about it, and I asked Dr. Campbell if all was right with the pulse. He replied, "All right, go on." Scarcely were these words uttered, when he suddenly cried out, "Stop! stop! No pulse, no breathing"; and, looking to M. Nélaton, he said, "Tete en bas, n'est ce pas?" Nélaton replied, "Certainly; there is nothing else to do." Immediately the body was inverted, the head hanging down, while the heels were raised high in the air by Dr. Johnston, the legs resting, one on each of his shoulders. Dr. Campbell supported the thorax. Mr. Herbert was sent to an adjoining room for a spoon, with the handle of which the jaws were held open, and I handed M. Nélaton a tenaculum, which he hooked into the tongue, and gave it in charge to Mr. Herbert; while to Dr. Beylard was assigned the duty of making efforts at artificial respiration, by pressure alternately on the thorax and abdomen. M. Nélaton ordered and overlooked every movement, while I stood aloof and watched the proceedings with, of course, the most intense anxiety. They held the patient in this inverted position for a long time, before there was any manifestation of returning life. Dr. Campbell, in his report, says it was fifteen minutes, and that it seemed an age. My notes of the case, written a few hours afterwards, make it twenty minutes. Be this as it may, the time was so long that I thought it useless to make any further efforts, and I said, "Gentlemen, she is certainly dead, and you might as well let her alone." But the great and good Nélaton never lost hope, and by his quiet, cool, brave manner, he seemed to infuse his spirit into his aids. At last there was a feeble inspiration, and after a long time another, and by and by another; and then the breathing became pretty regular, and Dr. Campbell said, "The pulse returns, thank God; she will soon be all right again." Dr. Beylard, who always sees the cheerful side of everything in life, was disposed to laugh at the fear I manifested for the safety of our patient. I must confess that never before or since have I felt such a grave responsibility. When the pulse and respiration were well reëstablished, M. Nélaton ordered the patient to be laid on the table. This was done gently. But what was our horror, when, at the moment the body was placed horizontally, the pulse and breathing instantly ceased. Quick as thought, the body was again inverted, the head downwards and the feet over Dr. Johnston's shoulders, and the same manœuvres as before were put in execution. Dr. Campbell thinks it did not take such a long time to reëstablish the action of the lungs and heart as in the first instance. It may have lacked a few seconds of the time; but it seemed to me to be quite as long. For the same tedious, painful, protracted, and anxious efforts were made as before; and she seemed, if possible, more dead than before; but, thanks to the brave men who had her in charge, feeble signs of returning life eventually made their appearance. Respiration was at first irregular, and at long intervals; soon it became more regular, and the pulse could then be counted; but it was very feeble, and would intermit. I began again to be hopeful, and even dared to think that at last there was an end of this dreadful suspense, when they laid her horizontally on the table again, saying: "She is all right this time." To witness two such painful scenes of danger to a young and valuable life, and to experience such agony of anxiety, produced a tension of heart and mind and soul that can not be imagined. What, then, must have been our dismay, our feelings of despair when, incredible as it may seem, the moment the body was laid in the horizontal position again, the respiration ceased a third time, the pulse was gone, and she looked the perfect picture of death? Then I gave up all as lost; for I thought that the blood was so poisoned, so charged with chloroform, that it was no longer able to sustain life. But Nélaton, and Campbell, and Johnston, and Beylard, and Herbert, by a consentaneous effort, quickly inverted the body a third time, thus throwing all the blood possible to the brain, and again they began their efforts at artificial respiration. It seemed to me that she would never breathe again; but at last there was a spasmodic gasp, and, after a long while, there was another effort at inspiration; and, after another long interval, there was a third; they were "far between"; then we watched, and waited, and wondered if there would ever be a fourth; at length it came, and more profoundly, and there was a long yawn, and the respiration became tolerably regular. Soon Dr. Beylard said, "I feel the pulse again, but it is very weak." Nélaton, after some moments, ejaculates, "The color of the tongue and lips is more natural." Campbell says, "The vomiting is favorable: see, she moves her hands; she is pushing against me." But I was by no means sure that these movements were not merely signs of the last death-struggle: and so I expressed my self. Presently Dr. Johnston said, "See here, doctor; see how she kicks; she is coming round again"; and very soon they all said, "She is safe at last." I replied, "For heaven's sake, keep her safe; I beg you not to put her on the table again till she is conscious." This was the first and only suggestion I made during all these anxious moments, and it was acted upon; for she was held in the vertical position till she, in a manner, recovered semi-consciousness, opened her eyes, looked wildly around, and asked what was the matter. She was then, and not till then, laid on the table, and all present felt quite as solemn and as thankful as I did; and we all in turn grasped Nélaton's hand, and thanked him for having saved the life of this lovely woman.

In a few minutes more, the operation was finished, but, of course, without chloroform. The sutures were quickly assorted and separately twisted, and the patient put to bed; and, on the eighth day thereafter, I had the happiness to remove the sutures in the presence of M. Nélaton, and to show him the success of the operation.

I have detailed the circumstances of this interesting case at great length, because I believe it goes as far to establish a principle of treatment as any other case ever did, or possibly can.

If the recovery had been complete and perfect with the first effort at reversing the body, there might have been a doubt whether the vertical position was really the cause of resuscitation; but when the horizontal position was again and again followed by a cessation of all evidence of life, and when life was again and again reëstablished by a position that favored only the gravitation of the blood (poisoned as it was) to the brain, the inference is very clear that death in such cases is due to syncope or cerebral anæmia. Exhaust the brain of blood in any way, and death follows. Fill it speedily with blood again, and life returns.

I have another case to relate, which goes far to establish the principle of treatment in chloroform narcosis, so forcibly illustrated by the case at St. Germain.

In January, 1873, I amputated the cervix uteri at the Woman's Hospital, drew the vaginal tissue over the stump, and secured it by silver sutures. The junior house-surgeon gave the anæsthetic. When the operation was nearly finished, he cried out, "The patient has stopped breathing," and immediately added, "She has no pulse." As before stated, I always use ether as an anæsthetic, and could not realize the fact that my patient was in any danger whatever till I was told that they were giving her a mixture of chloroform and ether (one part to four), which some of the surgeons had been using a few days previously. On examining the patient, I found her, as it were, dead; there was not the slightest muscular rigidity; the arms and head fell by their own gravity in any way they were directed; the neck was as limber as if it were a mere band of soft linen stretching from the head to the trunk; there was not the least sign of breathing or of the pulse; she was, to all intents and purposes dead; and I believe she would certainly have remained so if she had been left alone; and I doubt very much whether she could possibly have been resuscitated by any other method than that of Nélaton's.

I quickly inverted the body, and had it held thus; and then I shook the thorax, agitating the head laterally, so as to add an impetus to the movement of the blood, which, with the body in this vertical position, would naturally gravitate toward the brain; the jaws were held asunder, and the tongue hooked with a tenaculum, and pulled forward; in a few minutes the breathing was reëstablished, and then the pulse returned; and soon the patient was placed again on the table in the lateral semi-prone position, in which all my operations on the uterus are performed; and the operation was finished, but without any more of the anæsthetic.

These two cases comprise my personal experience with Nélaton's method in chloroform narcosis.

The "New Orleans Medical and Surgical Journal" for November, 1873, says: "In the course of an extended experience in the administration of chloroform, it has happened three times to Dr. M. Schuppert, that, to all appearances, the narcotized subject died—that is, respiration ceased, the heart stopped beating, and muscular contractility became extinct. The method he adopted for resuscitating these patients consisted in reversing the bodies, either by hanging them up by the feet, or laying them over a bed or table, so that the greater part of the body with the head hung down. In that position, artificial respiration was also tried. In one case, five minutes elapsed before there was a natural inhalation. All of them recovered. Dr. Schuppert believes that in case of death from chloroform, the primary cause of the cessation of the respiration and circulation rests in anæmia of the brain, and not in impregnation of the blood with carbonic acid."

Another American authority, Dr. E. L. Holmes ("Chicago

Medical Journal," September, 1868), says that when there is any failure of the heart's action, as is nearly always the case, the body should be laid at an angle of forty degrees, with the head downwards, so as to favor the passage of arterialized blood to the brain.

I take it for granted that Dr. Schuppert and Dr. Holmes must have obtained their knowledge of this method of resuscitation either directly or indirectly from the teachings of Nélaton; for he had for years been in the habit of explaining his method in his lectures and at his *cliniques*, and Dr. Johnson published an account of it in the American papers in 1861. Ten years ago, there was a story prevalent in Paris that M. Nélaton had derived the hint of reversing the body in chloroform-poisoning from a discovery accidentally made by his little son, then some seven or eight years old; that the little boy had killed some mice with chloroform; that, without thought or reason, he had taken up a dead mouse by the tail, and was twirling it round, when, to his surprise, it began to manifest signs of life, and recovered entirely, while the mice left lying were dead; and that the great surgeon was thus taught a great lesson, if not by babes and sucklings, at least by a little boy. This is a very pretty story as it is, and it seems a pity to spoil it. A few days ago, when in Paris, I called to see young Nélaton (who is now a student of medicine, and will graduate next year), and I asked him for the facts of the mouse story. He said that when they lived on the Quai Voltaire, the house was infested with mice; that great numbers were caught in traps almost daily; that he was in the habit of killing them with chloroform by covering the trap with a napkin and pouring the chloroform on it; and that his only idea was that of an easy death for the mice. One day, when he had given a happy dispatch to some mice, his father accidentally came into the room, and, seeing the dead mice, he told his son if he would take up one by the tail, and hold it with the head downwards, that it would revive, while the others would not. He did this, and found it was true. And he told me that he had, when a boy, performed the same experiment on mice some forty or fifty times or more, and always with the same unvarying result. He says he has often heard his father speak, not only of the case that occurred at St. Germain, but of other cases that he had saved in the same way before the time of the mouse story, which dates back to 1857 or 1858.

As the facts now laid before you fully explain themselves, it is unnecessary for me to indulge in any lengthened remarks on the subject. In my own country, the accoucheurs often use chloroform, and the surgeons mostly use ether. I believe there has not as yet been a single death from chloroform given during labor; while deaths from it in general surgery occur constantly, and for unimportant operations. There must be a reason for this. I believe that it can be explained only on the theory that death from chloroform is, as a rule, due to syncope or cerebral anæmia. Now, we know that in active labor there can be no cerebral anæmia, for every pain throws the blood violently to the head, producing fullness and congestion of the blood-vessels, thereby counteracting the tendency of the chloroform to produce a contrary condition. It may be said that the recumbent position has some influence in determining the safety of chloroform in labor; and so it has, but it gives no immunity under other circumstances. Chloroform, given intermittingly, as in labor, is thought to be less dangerous; but patients in labor are often kept for hours under its influence with safety, and occasionally it is necessary to produce complete and profound narcosis in some obstetrical operations; and yet, I believe, I can safely reïterate, what I have already said, that no woman has as yet died in labor from the effects of this anæsthetic. In puerperal convulsions, where the brain is believed to be overcharged with blood—and that, too, when the blood is known to be poisoned with urea—we formerly bled the patient, and we do so now sometimes, but our chief remedy is chloroform, which acts by arresting spasmodic movements, and by producing that very state of cerebral anæmia so necessary to a successful result. Whether puerperal convulsions are less frequent in labor under chloroform than in those without it, I do not know.

I believe that obstetrics may take a lesson from Nélaton's method of resuscitation, by adopting it in cases of threatened death from post-partum hæmorrhage. Let us not be satisfied with simply placing the head low; but, let us, in addition to the means usually adopted, invert the body, and throw what little blood there is left in it wholly to the brain. I have never seen a death from uterine hæmorrhage; but from recollections of the few alarming cases I have witnessed, I now feel sure that recovery might have been hastened if I had known of and adopted Nélaton's method of inversion.

Whether death from chloroform is due to cerebral anæmia or not, it is at least safe to adopt Nélaton's method in all cases of supposed or threatened danger; but I think the safest plan is to relinquish the use of chloroform altogether, except in obstetrics. The frequent cases of death from the use of chloroform in surgical operations that have occurred amongst us, even of late, should warn us to give up this dangerous agent, if we can find another that is efficient, and, at the same time, free from danger. Ether fulfils the indications to a remarkable degree; but, while it is safe, it is unfortunately unpleasant to the physician and bystanders, as well as to the patient. He who will give us an anæsthetic as pleasant to take as chloroform and as safe as ether, will confer the greatest boon upon science and humanity.—*Proof-Sheets from the Author.*

NOTE.—I have three times had the pleasure and privilege of aiding in saving life by this method.—E. S. G.

ART. III.—TREATMENT OF VASCULAR NÆVI WITH THE GALVANIC CAUTERY. By B. F. DAWSON, M. D., etc., New York. [American Journal of Obstetrics and Diseases of Women and Children, 1874.]

In vol. iv., No. 3, November, 1871, of this journal, I published a paper on the "Treatment of Vascular Nævi with the

Actual Cautery," and related therein several cases in which the most satisfactory results followed that method of removal, or rather destruction; and having since operated many times in like manner, I still adhere to the views therein expressed of its advantages and gratifying results.

During the last two years, however, I have had opportunities of witnessing the use of, as well as using myself, the galvanic cautery in various operations, when it is "par excellence" the best means at the command of the surgeon. Having possessed myself of an apparatus, I have used it many times for the destruction of nævi—in some of which other methods, excepting the actual cautery, had proved unsatisfactory—with unfailing success and most gratifying results.

As many surgeons still seem undecided as to the best means for removing this not uncommon congenital disease, many still adhere to the oldest and most unsatisfactory methods, I deem it not inadvisable to add my testimony in favor of a method that at least one high authority, Dr. Maas, of Breslau,* pronounces to be followed by the best results, and is much safer than the injection of iron or other coägulating fluid. This opinion he arrived at after having used the galvanic cautery in 112 cases with the following results: *Capillary nævus*—cured, 32; improved, 1. *Cavernous or venous nævus*—cured, 72; improved, 8; died, 3. *Arterial or racemose nævus*—cured, 2; improved, 1. *Nævus combined with other tumors*—cured, 6; improved, 1; results unknown, 2.

The galvanic cautery differs from the actual cautery in the means and facility for heating the needles, while it is superior to the latter from the fact that the degree and duration of the heat is wholly under control of the operator, and consequently it admits of being used with greater care and deliberation, while the actual cautery needles, readily parting with their heat, necessitate their hurried use. These advantages, combined with the admissibility of using very fine needles, are the only advantages the galvanic can claim over the actual, for the effects of the two methods are precisely similar—destruction of the diseased parts by heat. Both methods have the advantage of allowing the destruction of nævi in parts of the body where it would be either unsafe or impossible to apply other means, as was the case in the third of the following cases which I have selected as best illustrating the advantages claimed for the galvanic cautery.

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* Archiv für Klinische Chirurgie. Vol. xii., 1871.

CASE I.—Mary O'Neil, one year and eight months, was brought to me February 17, 1873, with an irregular capillary nævus, the size of a bird's egg, situated immediately beneath the lower left eyelid. The history was as usual—that it was a small spot at birth, but had grown rapidly to its present size, and was a source of annoyance to the parents, as well as considerably disfiguring the child's face. The parents wishing its removal, the following day (18th) I singed it carefully, but thoroughly, with the galvanic cautery, throughout its whole extent, but not deeper than the cutis, so as to guard against unnecessary destruction of tissue, and consequent cicatricial contraction. Cold compresses were then applied and kept in place by a bandage. The next day there was slight consecutive inflammation of the adjacent tissue, very little swelling, and but slight sympathetic congestion of the conjunctivæ. In a week after, all signs of congestion had subsided, and a thin scab covered the site of the nævus, which fell off on the twelfth day after the operation, leaving a healthy dark pink and soft eschar, showing no trace of the nævus, and not in the slightest contracting, or impairing the mobility of the lower lid. Several weeks after, a slight discoloration was the only mark noticeable.

CASE II.—Jessie B——, two years old, fine healthy child, was brought to me from Flushing, Nov., 21, 1873, by previous arrangement, to be operated on for a subcutaneous venous nævus situated over the right eyebrow. Compression, collodion, and argent. nit. had been used by different physicians without result, as the disease continued to grow to its present size of about half an inch long by one-quarter wide. As in the preceding case, I singed the nævus thoroughly with the platinum needle at a red heat, a wet compress was applied, and the child taken home to Flushing the same afternoon. Five days after, I saw it at my office, and found a firm black scab covering the site of the nævus. In a few days the scab fell off, leaving a healthy pink cuticle beneath, but at a lower angle a small dark spot showed that a portion of the nævus had escaped destruction. This was destroyed, in like manner, on December, 21st, one month after first operation. The result in this case has been perfectly satisfactory, for when seen on Feb. 24th last the seat of the nævus could only be recognized by a small mark scarcely noticeable, and which the parents have recently informed me is getting fainter each week. In this case I was assisted by my friends, Drs. Rankin, Porter, and Hanks.

CASE III.—Sarah Hawley, fourteen months old, was brought to me Feb. 21, 1874, at the Dispensary for Sick Children, with a subcutaneous venous nævus in lower portion of the upper right eyelid, and considerably disfiguring the child. The history was one of rapid growth to its present size of a large pea.

The mother stated that she had taken the child to the Eye Infirmary in this city, but that she was advised to have nothing done. On close examination I resolved to operate on the tumor, as from its very rapid growth it was evident that the whole lid would before long be involved, and its function being thus impaired, the eye itself would suffer. From the location and deep character of this nævus I could judge of no safe means of removing it excepting the galvanic cautery. Certainly it would have exposed the eye itself to injury to have attempted its removal by the potential caustics, vaccination, or coägulating injections, for the reason that the effects of these methods would extend beyond the actual site of the nævus, as their action is not wholly under control; the opposite is the case in using the galvanic cautery needle, with which it is possible to destroy slowly and cautiously, and only to the extent deemed safe in view of the consecutive inflammation.

On Feb. 24th, assisted by three of my students, I operated on the case, entering the nævus with the red-hot platinum needle at the lower border of the nævus, which was held by forceps, and thus destroying it subcutaneously by working the point of the needle cautiously to the right and left, avoiding going too deeply. The whole operation was completed within three minutes, and the child on recovering from the chloroform was removed to its home, a wet compress being previously applied.

I saw the child again on the 27th, when a firm scab covered the site of the nævus; there was also some congestion of the conjunctivæ, but nothing very marked, and but little swelling of the lid. On the 30th I saw the case again and found the scab removed and a slight cicatrix remaining. The eye in all other respects looked healthy. When last seen, April 2d, nothing excepting a small scar showed where the nævus had been; there was no contraction of the lid, and the mother expressed herself highly pleased at the result. Certainly no better result could have been obtained by other methods of treatment.

These three cases may be considered as fully illustrating the superiority of the galvanic cautery over other means of destroying nævi, and I feel confident that it will before long be universally considered the safest and most reliable means in the majority of cases for removing this so often disfiguring and sometimes dangerous congenital disease.—*Proof-Sheets.*

ANALYTICAL DEPARTMENT.

"Qui e nuce nucleum esse vult, frangit nucem."—PLAUTUS.

ART. I.—CONTRIBUTIONS. By R. C. BRANDEIS, M. D., Louisville, Ky.

Dr. E. Stromeyer, of Göttingen, has published an article on Hypopigon (Keratitis) and its Causes in Graefe's Archive, part ii., vol. xix.

He says that in the majority of cases it is due to injuries of the cornea, but can also be produced, as proven by Leiber's and Eberth's experiments, by the inoculation of diphtheritic, septic, and pyæmic matter, as well as by the leptothrix. Stromeyer has made a series of experiments in order to determine whether there be any difference in the effect of a simple wound or cauterization of the cornea, and one in which the lesion has become infected by septic matter. He found that in injuries resulting from the contact of indifferent foreign bodies, the reäction was almost nothing compared to the violent disturbances following those experiments where the foreign bodies underwent chemical disintegration; the reäction set in with more certainty in those cases in which the matter to be inoculated had already become disintegrated. However, if these were removed in time, and the eye bandaged hermetically, no reäction set in whatever.

Stromeyer produced the serpiginous corneal ulcer, diffuse purulent keratitis, hypopium, and in one instance penophthalmitis, by the introduction of septic matter. In every instance there was a marked tendency of the inflammatory process to extend itself to the deeper tissues of the eye, and Stromeyer thinks that this is not caused by nervous irritation, but by the direct transmission of the septic material. The only question to be solved is, how does this take place? Not through the blood vessels, for there are none in the healthy cornea. So experiments have also proven the fallacy of the theory that pus corpuscles may pass through the posterior lamellæ of the cornea and Descemet's membrane into the anterior chamber, and here exercise their irritation on the neighboring parts. The lymphatics which run parallel to the nerves appear to be the common carriers of the infectious matter. The cornea was found to be opaque in the enucleated eye-balls experimented on, and filled with pus-cells, which were more numerous in the centre than in the periphery. In a number of cases the iris was swollen, the pupil obliterated by hypopium and attached to the lens capsules by synechiae. As a number of cases were seen in which the iris was intact, the idea that the pus found was produced by the iris, was found untenable, and a new solution must be sought for by which a migration of white corpuscles could take place into the anterior chamber.

Stromeyer thinks that this occurs in that part of the ciliary body and *circulus venosus iridis*, adjacent to the angle of the anterior chamber. A large number of pus-cells were found aggregated in this spot.

Von Burow on the Operation for Entropium and Distichiasis.—Von Burow publishes the reports of more than 1,000 operations for entropium and distichiasis, in a recent number of the "Berlin Clinical Weekly," and says that, after trying all the different plans which have been suggested for the relief of these distressing conditions, he has adopted a method which, he says, scarcely ever fails to give a satisfactory result. The method is so safe and simple that the persons operated upon can always be treated as out-patients. Entropium is caused by a boat-shaped incurvation of the lower border of the tarsal cartilage. If the lid of an eye suffering from entropium be inverted, a white line can almost always be seen running parallel to its lower margin, at a distance of about one line from it. This line becomes of the same color as the neighboring mucus as soon as pressure is taken off the inverted lid, so that it may assume its usual shape. This shows that the white line was caused by the obstruction of the circulation; and by close observation an alteration in the form of the tarsal cartilage, in a position corresponding to the white, may be detected. The cartilage is curved inward in such a way that the ciliary margin is pressed against the surface of the globe. The object of the operation is to get rid of this infliction. Its principal feature consists in the complete division of the tarsal cartilage throughout its whole length along the line mentioned. The operation is best performed by making an incision through the middle of the mucous surface of the cartilage at a distance of one to one and a half lines from its lower border. The left thumb-nail should now be inserted into the cut, in order to hold the lid securely. The incision may then be prolonged as far as necessary towards the inner and outer canthi, care being taken to leave no portion of the cartilage undivided, and to cut through all the tissues of the lid as far as the skin. As soon as this is done, the margin of the lid assumes its proper position, and the lashes do not rub on the bed any more. This alone is often sufficient for the removal of the deformity; if the cartilage is much curved, or the skin very lax, it is advisable to remove a fold of the latter. Some discretion must be exercised in determining the size of the piece to be removed. If the operator be not experienced, he had better mark out the piece of skin to be removed, by pinching it for a few moments with a ptosis forceps, and then having applied Desmarré's fenestrated forceps, remove it with a knife. The edges of the wound should now be brought into apposition by means of sutures and collodion.

If the entropium be only partial, a complete division of the cartilage is still essential for its relief. The same operation may be done for the relief of distichiasis, but here a much larger fold of skin should be removed than in entropium.

Professor Otto Becker, of Heidelberg, has recently published ("Graefe's Archive," vol. xix., part iii.) a report of two cases in which he proves that strictures of the lachrymal canal may occur without dilatation of the lachrymal sac, and give rise to the most intractable inflammation of the conjunctivæ and the border of the lids.

He proposes therefore that, in all cases of obstinate conjunctivitis and blepharitis, the lachrymal canal be probed, by means of Bowman's sound (No. 1) through the upper canaliculus, a process which, after a little practice, does not inconvenience the patient very much. If such a sound can not be introduced, there is undoubtedly a stricture present, and the canaliculus should be immediately opened, to enable us to treat the stricture according to rule.

A division of the ciliary nerves for persistent neuralgia in an amaurotic eye is reported by Dr. H. Snellen ("Graefe's Archive), vol. xix.

The patient, on whom Snellen performed the above-mentioned operation, was wounded in a duel twenty years ago, the rapier passing through the right lower lid deep into the orbital cavity. Paralysis of the left side of the body, loss of the sense of smell and hearing, as well as amaurosis of the left eye, were the results of the injury. The patient's health improved, after a prolonged sojourn at the sea-coast, although the impairment of the special senses remained the same; shortly after this an acute pain, localized on the upper lid of the affected eye, set in, which caused great agony, accompanied with a sensation of pressure on the forehead.

Atropia and morphia, though freely administered, failed to afford the slightest relief. The amaurotic eye showed partial atrophy of the optic nerve, but no signs of congestion or increased intra-ocular tension were noticeable. The patient, owing to his social standing, would not submit to an enucleation of the bulb. Snellen thereupon proposed the division of the ciliary nerves, which was gladly acceded to. The operation was performed in the following manner: The external rectus was tenotomized subconjunctivally for the twofold purpose of correcting a divergent strabismus and to enable the operator to get at the posterior portion of the globe. While an assistant turned the eye inwards as far as possible, Snellen passed a closed scissors into the wound in search of the optic nerve; as soon as this was found, he incised the sclerotica as far as the opticus, at the same time dividing all the ciliary nerves and vessels. The conjunctival wound was closed by three sutures; union took place properly, and the pain formerly complained of disappeared entirely, and so did the frontal headache.

Professor Burow makes the following pertinent suggestions as to the choice of spectacle frames ("Berlin Classical Weekly," No. 18, 1872.) He says that the distance between the centres of the two glasses (for myopes and hyperopes) should be somewhat less than the pupillary distance. The contrary is usually found; the pupillary distance averages 54, millimetres, i. e., about 2¼ inches, while in the large majority of frames the distance is as much as 66 millimetres, about 2⅝ of an inch. In consequence thereof the spherical glasses have the effect of prisms. A hypermetrope with insufficiency of the internal recti requires a prismatic convex glass with base inwards; a myope with insufficiency of the external recti should have a prismatic concave glass with the base outwards. If the spectacle frame be as described above, the very opposite will obtain.

CLINICAL RECORDS.

"Ex principiis, nascitur probabilitas: ex factis, vero veritas."

Art. I.—Excision of an Ovarian Cyst from a Child Seven and a Half Years Old. By George Cupples, M. D., San Antonio, Texas.

Julia Young, seven and a half years of age, of healthy parents, herself having previously enjoyed good health, but of a nervous temperament, and convalescing from a severe attack of whooping-cough, was brought to me on the 16th of June, '74, to be prescribed for, for a swelling in the belly. The swelling was discovered by the mother three months previously. She (the mother) described it as "a fullness or lump in the left side, which has continued to increase."

The history of the case was not elicited until some time after the operation, and then, accidentally, the mother recollected that three years previously the child, while playing, was knocked down by a heavy piece of timber, which fell on her abdomen and pinioned her to the earth; so heavy was it, that it necessitated the assistance of another woman with herself to raise it from off the child in order to extricate her.

On the date before-mentioned, I elicited the following: For the past few days the swelling has increased in size; the child complains of cramps in left lower extremity; in fact, so severe are these cramps that she has been awakened from her slumbers by them.

On inspection, I found the superficial veins on left side of abdomen somewhat enlarged, and a tumor, ovoid in shape, movable, and free, occupying a space from three inches above to three inches below the umbilicus in the mesian line. It presents the appearance of a miniature gravid uterus, fluctuation distinct on left side, whilst there is dullness on percussion on opposite side.

My diagnosis is, "Cyst of Left Ovary." I ordered the child to have castor oil and turpentine. After the action of the purgative, the salient features of the tumor became more distinctly marked.

On the 17th of June, the day following, I introduced an exploring trocar and gave exit to about half an ounce of thick albuminous fluid, clear, but dark. The flow ceased in consequence of the increased viscidity of the fluid obstructing the canula. My diagnosis was now confirmed, and I determined to extirpate the tumor so soon as the patient should be more fully relieved of the pertussis. I therefore ordered her return in fifteen days (the parties live in the country).

On the 23d of July, the patient returned for operation. The tumor was enlarged, and occupied a position regarding the left hypogastrium, having passed the mesian line.

July 25.—The tumor to-day occupies an oblique position between the left hypogastrium and right hypochondrium; the position having changed in the last twenty-four hours. It is tense, tender, and doughy. The child's general health is good; her cough still troublesome at intervals, and at times very severe. I ordered her to have half ounce of castor oil, with a view to evacuate the bowels prior to operation, which I set for to-morrow.

July 26.—Aided by Drs. A. E. Carothers, of Saltillo, Mexico; F. Paschal, T. R. Chew, and A. Ansell (the latter in charge of the anæsthetic), I proceeded to the excision of the tumor.

I made an incision two and a half inches long, a line or two to the left of the mesian line, severing severally the integument, fascia, aponeurosis, and peritoneum, and exposed the tumor, which now became very prominent. Introducing my finger, I found the tumor free from adhesions. I then extended the incision two and a half inches more—that is to say, one and a half inches upward and one inch downward—making the wound five inches in length. At this moment vomiting set in with such violence as to cause the extrusion of the whole of the small intestines, which were carefully enveloped in flannels dipped in warm water, to which had been added liquor potassæ permangan., and there retained until after the removal of the tumor.

This untimely vomiting was due to the parents having given milk punch instead of a small toddy, which I ordered to be given an hour previous to the operation; this caused a delay of about fifteen minutes.

The tumor was now punctured with a "trocar of Ponteau," and its fluid contents drawn off in such a manner as to effectually prevent any escape into the abdominal cavity. The pedicle being thin, and the condition of the parts apparently favorable for enucleation, an attempt was made to strip off the investing membrane, but it proved to be too delicate to bear entire removal; the pedicle was, therefore, secured by a single carbolized cat-gut ligature, divided, and returned within the cavity. With considerable difficulty I returned the intestines, and closed the wound by six deep silver-wire sutures, including in these the peritoneum, and five superficial twisted sutures. The operation was concluded in sixty minutes, during all of which time the little patient was fully anæsthetized by chloroform (a very superior article, manufactured by Messrs. Mallingrodt & Co., St. Louis, Mo.). The whole quantity of the anæsthetic consumed in this operation was three drachms by weight. The pulse continued good throughout. The wound was covered with a pledget of lint dipped in carbolic oil (1 to 80), over which was applied a pad of linen, and over all an evenly laced flannel bandage.

Immediately after the operation the temperature was 98.4°; pulse 114; skin soft, warm, and moist; no vomiting. Ordered tinct. opii, gtt. x., in brandy and water; to have small pieces of ice.

The composition of the tumor was of the usual character—sebaceous matter, loose hair, in considerable quantity, and extremely fine. There were also a number of small cysts, from the size of a No. 6 shot to that of a good-sized marble. There was also one that had attained the size of a hen-egg. The entire size of the tumor was that of a cocoa-nut. Its weight was fifteen ounces, of which the solid part weighed three and three-quarter ounces. 12 M.—Has had no vomiting; no cough. The opium and brandy repeated once. Temperature 101.3°; pulse 120; respiration 38. (The temperature of the atmosphere this day was over 100° F. in the shade.)

July 27, 9 *A. M.*—Temperature 98.5°; pulse 120; respiration 30; vomiting brought on by too free administration of milk; slept well during the night. The urine was withdrawn by catheter. 12 M.—Still vomiting slightly; to have ice; catheter again used. 6 P. M.—Temperature 104.4°; pulse 120; respiration 30; occasional vomits; slight tympanitis; catheter used. 9 P. M.—Some nausea; six ounces of urine drawn off by catheter; temperature 100; pulse 108; respiration 22. Ordered turpentine, 5 drops, on a piece of sugar.

July 28, 3 *A. M.*—Temperature 100°; pulse 108; respiration 26; some nausea; tympanitis diminished; rests well; repeat turpentine. 6 A. M.—Temperature 99°; pulse 90; doing well; tympanitis entirely subsided; to have an egg for breakfast. 12 M.—Some thirst; no nausea. 7 P. M.—Sleeping calmly; no nausea or tympanitis; urinated twice without aid; decubitus natural; appetite sufficient.

July 29 7 *A. M.*—Temperature 99.6°; pulse 82; slept well all night; no thirst; wound dressed, is united throughout its whole extent. 6 P. M.—Pulse and temperature as in the morning; doing well.

July 30, 6 *A. M.*—Temperature 99.8°; pulse 80; doing well; sleep somewhat disturbed last night by colicky pains; urine voided without difficulty.

July 31, 6 *A. M.*—Rested well; complains of some pain in left hypogastrium. 3 P. M.—Bladder distended; 8 ounces of urine drawn off by catheter; still some pain in descending colon. To take tinct. opii, gtt. v.

August 1, *A. M.*—Free from pain; slept well all night; dressed wound, and withdrew all superficial sutures. P. M.—Bowels moved spontaneously.

August 2, 7 *A. M.*—Doing extremely well; has some cough. To take tinct. opii camph., gtt. x.; pot. bromid., grs. x., in aqua, *pro re nata.* 12 M.—Cough relieved; wound dressed; removed three deep sutures; patient permitted to sit up.

August 3, *A. M.*—Wound dressed, is firmly united; removed rest of deep sutures.

August 5.—Patient on her feet. On this day there occurred a true menstrual flow, lasting several hours, due, no doubt, to irritation caused by presence of ligature.

On the morning of the fourteenth day from the operation, she left for her home, where she remains in the enjoyment of perfect health.

The temperature of the atmosphere throughout the treatment of this case ranged from 80° at night to considerably over 100° in the day, attaining one day the unusual point of 107° F. in the shade.

The rarity of ovarian cyst before puberty is such that I have been able to collect from the limited resources within my reach but nine cases. The case related above makes the tenth.

Case 1.—In the "Journal of Medical Sciences" for July, 1869, there is reported a case of ovariotomy by Dr. Thos. Bryant, of Guy's Hospital, London, in a girl fourteen years of age. Tumor weighed four pounds; operation successful.

Case 2.—In the "London Lancet" for December, 1871, there is also reported a case of ovariotomy in a girl thirteen years of age, operation by Mr. Jessup at the Leeds General Infirmary; the operation was successful.

Case 3—Was one in Holland; patient thirteen years old; operation unsuccessful; operation by Dr. J. Han der Hoeven, Rotterdam. ("Medical Times and Gazette," June, 1874.)

Case 4.—A girl twelve years old, operated on by Professor Jouan of the School of Medicine of Nantes,. France. Case mistaken for one of hydatids of the liver; abdomen opened by caustics; discovery of a multilocular tumor, ovariotomy; recovery in forty-six days. ("Journal of Medical Sciences" for January, 1871.)

Case 5—Was an ovarian tumor in a child two years old, under care of Mr. Alcock, of the North Stafford Infirmary, England. It was tapped and true nature of disease discovered. Ovariotomy at three years of age; multilocular; pedicle ligated; death from exhaustion in forty-eight hours.

Case 6.—Successful ovariotomy in a child six years of age, at Higginsport, Ohio, noticed in the February number of the "London Lancet" for 1873, as an extract from the "American Journal of Medical Sciences."

Case 7.—A child six years and eight months old. The case was reported in the European Continental journals; also by "Medical Press and Circular" for March, 1873. Ovariotomy in 1871; tumor as large as a child's head; no adhesion. Pedicle tied at inferior angle of wound; recovery on nineteenth day.

Case 8.—Ovarian cyst in a child eight years old; tapped three times in thirty-one days; death ensued after the third tapping. Autopsy revealed an ovarian cyst, with extensive adhesions to peritoneum and liver. Reported by Dr. C. G. Goodrich, of Minneapolis, in State Society's Transactions. ("Richmond and Louisville Medical Journal" for January, 1873.)

Case 9.—Dr. Dickinson, of Liverpool, exhibited a specimen of ovarian tumor from a child ten years of age; multilocular; no operation was performed, all surgical interference having been forbidden. (Proceedings of Pathological Society, from "London Medical Times and Gazette" for May, 1874.

I saw my little patient on the 26th of October in perfect health. There is a perceptible fullness of the left hypogastrium.

PROCEEDINGS OF SOCIETIES.

"Etsi non prosunt singula, juncta juvant."

The Central Kentucky Medical Association.

The Association met at Stanford, Ky., Oct. 21, 1874, at the Good Templar Hall, at the usual hour, the Vice-President, Dr. A. D. Price, in the chair. Present, Drs. Reid, Alcorn, H. Brown, S. L. S. Smith, U. S. A., McMurtry, Taylor, Tucker, McKee, Dunlap, Cowan, Jackson, Nelson, C. T. Spilman, Craig, Bailey, Bohon, Logan, Grinstead, Bronaugh, Lewis, A. G. Huffman, and Erwin.

The appointee, Dr. Ed. Alcorn, opened the debate with an excellent paper on Dysentery, the question for the day.

After describing minutely the symptoms, pathology, course, duration, etc., etc., of sporadic and epidemic dysentery, he said, that as a rule in every country where paludal fever exists, dysentery is an epidemic and prevailing disease. Its association and coëxistence with malarial fever is well known. According to Niemeyer it results, though not exclusively, from a miasm, the dysentery germ being developed outside the human body. High temperature and moisture are favorable conditions for the development and propagation of dysentery; hence it is common in the tropics, but the fact that the disease exists in dry and cold climates, is proof that these conditions are not absolutely necessary for the development of the poison. Among the numerous existing causes, are atmospheric vicissitudes, exposure to cold rains, night air, imprudence in diet, etc., etc. Stating his belief in contagiousness of dysentery, not known to the extent that small-pox, measels, etc., are, but by the dissemination of the poison from dejections and exuria from dysenteric patients through the air. He quotes from Aitkin, Budd, and others in support of his belief. The prognosis of sporadic dysentery in this climate, he said, is favorable. A fatal result is generally due either to an unusual extent and degree of inflammation, or to an enfeebled constitution, or to some coëxistent disease. His own experience coïncided with Dr. Flint's regarding the infrequency of relapses.

After giving the diagnosis, he said, in the treatment of dysentery, everything that tended to favor the development and propagation of the poison should be removed or destroyed. The dejections should be disinfected and thrown into a separate pit. The bed-pans, syringes, and everything used about the patient must be thoroughly cleansed and disinfected before using in other cases. Perfect rest in the recumbent position is absolutely demanded in severe cases. The bowels should be first cleared by salts or oil, of which he preferred the latter, after which a full dose of opium, in some form, either by mouth, skin, or enema—preferably the latter—is required.

Venæsection, large doses of calomel, or other heroic means for the purpose of aborting the disease, he regarded as unscientific and dangerous. Astringents are sometimes beneficial, but generally their action is unsatisfactory.

After discussing the ipecac treatment at length, its origin, the various theories as to its modus operandi, giving the statistics of the British Army in India before and after its use, he said he had but little experience with it, having been deterred from making use of it by want of confidence in its efficacy. He had failed, he said, to find any author of rank who relied upon it exclusively. It is generally preceded or combined with opium in some form, and he believed the good effects following were attributable to the narcotic. He had used calomel as a purgative in the beginning of an attack in strong, vigorous subjects, especially when there was reason to suspect glandular engorgement, with benefit. Any complication, as of intermittent or remittent fever, must be met with suitable treatment. In severe attacks of acute dysentery he had found a strong tendency to congestion after the first few days, and for this he had found nothing better than quinine and diffusible stimulants.

In conclusion, he condemned the use of the gum syringe as dangerous and unreliable, on account of the great liability of injecting air into the bowels.

Dr. Dunlap commended the paper very highly. He had passed through one very fatal epidemic of dysentery in 1851, in which all remedies had failed. Nearly every case was complicated with malarial trouble, and after a shorter or longer interval, would assume a typhoid character. It was especially fatal among negroes, who, as a rule, were more neglectful of hygiene than the whites, but when they were isolated, and ventilation and cleanliness observed, the mortality was lessened. No ipecac was used then, as that method of treatment was unknown. (! !) He had made a number of post-mortems during the prevalence of the epidemic, and ulcerations were always found in the lower bowel, sometimes as far as the sigmoid flexure. He had never had occasion to use the ipecac treatment in dysentery, but judging from what had been claimed for it, he could not doubt its value. He had not discarded calomel, and in suitable cases he would probably use the lancet, but as a general practice, he would use neither.

Dr. McKee said the paper was a good one, and in harmony with the teachings of the most judicious and practical writers of the day. He would not undertake to criticise anything advanced by the author, either in regard to pathology or treatment of dysentery, but would simply refer to some points which he said might profitably be discussed still further.

He believed there was a specific dysenteric poison, as there is of miasmatic typhoid, the eruptive fevers, and cholera. The nature of the poison is unknown, but it is known under what conditions some of the poisons are generated, as for instance typhus, and doubtless scientific investigation will some day demonstrate the nature and physical properties of this. Dysentery is often associated with and materially modified by intermittents and remittents in miasmatic districts. Then it yields to or is greatly benefited by quinine, and some, taking a localized view of the disease, have been led to regard it as generally amenable to that remedy. But the disease often prevails epidemically when miasmatic causes are unknown. The sporadic and catarrhal forms of dysentery rarely give much trouble; very little treatment, often none, is required. The malignant epidemic of dysentery, which prevailed in the neighboring counties, particularly in Madison, Estill and Rockcastle in 1850–1, had no connection whatever with the malarial forms of fevers. The localities where it was most prevalent and fatal were high, dry, well watered, and noted for their healthfulness. The disease was adynamic or typhoid in character, which he said impressed him with the belief that enteric or typhoid fever coëxisted with, and ran its course pari passu with the pulse. In Madison county the epidemic followed immediately the disappearance of the cholera of 1849, as the epidemic of 1834 and 1835 succeed the cholera of 1833 in Lancaster, Kentucky.

May not typhus also coëxist and run its course with dysentery? This, he said, might be illustrated by reference to its prevalence in hospitals, camps, prisons, or other places where large numbers of persons are crowded together, breathing vitiated air.

The disease is also modified, he said, when complicated with scorbutus. His observations from several fatal epidemics of dysentery through which he had passed, had impressed him with the belief, he said, that no two epidemics can be treated alike successfully; what succeeds in one may utterly fail in another. The treatment must be regulated by the complications and coëxisting diseases. Quinine is required in miasmatic poisoning, and in a typhoid or adynamic condition a sustaining treatment is demanded from the first. If there is a scorbutic condition, give vegetables, acids and fruits.

Dr. Craig regarded calomel as a very valuable remedy in dysentery. He had never seen an epidemic of the disease, but in sporadic cases its administration had been followed by the best results in his hands. He had begun pratice with a decided prejudice against it, but he was satisfied now of its value and efficacy in dysentery.

Dr. McMurtry expressed his appreciation of Dr. Alcorn's paper, and gave as the chief causes of dysentery, bad food, impure water, and illy ventilated apartments; in short, disregard of hygienic laws. The ravages of the disease in camps and prisons during the late war, he thought, furnished proof of this view of its causation. The remarkable fatality of the disease in many of our hospitals where the food is poor, and the aerial capacity of the wards not adapted to the number of patients, was offered in support of this position. He referred to his recent experience in a Southern hospital where the subjects of chronic dysentery rarely recovered. He also stated in this connection, that during the terrible epidemic of yellow fever last year in the South, the discovery of fatty degeneration of the heart in autopsies of those dying of this disease had received considerable attention. Upon further investigation, however, this condition was found in many other diseases which interfere with the nutritive processes, and among others chronic dysentery.

These facts, he said, should make thorough ventilation, scrupulous cleanliness, and close attention to nutrition, prime elements in the treatment of the disease.

As to treatment, he thought that when instituted early in the course of the disease, the best results were obtained from the use of a saline cathartic, following up its action with the administration of opium. In this way the alimentary canal is relieved of its contents, the engorged vessels along the course of the mucous surface disgorged, and afterwards the bowels are put at rest by opium.

In chronic cases, where other means have failed, he thought good results might be expected from topical treatment. The application of nitrate of silver to the ulcerated surface by means of the anal speculum was mentioned. He also referred to the beneficial effects derived from injections of the solution of chlorinated soda in these cases, insisting that the injections should be made by or under the immediate supervision of the physician, so as to bring the solution in contact with the entire surface of the colon.

Dr. A. G. Huffman had listened with great interest to the paper just read, and he heartily approved of the views advanced in it. He had seen a very fatal epidemic of dysentery when an office pupil in 1832, in which the mortality was excessive. His preceptor despairing of effecting any cures, had, at his suggestion, changed the treatment to calomel and ipecac with very favorable results. This, he said, had been his general treatment since, with enemata. He, however, had no regular method. If the patient was of full habit, he would bleed. If there is a malarial complication, quinine is required.

Dr. Jackson said that Dr. Alcorn had read an excellent paper; that indeed the Association would have been disappointed had it been otherwise; for, as was known to all, Dr. A. wielded a graceful and ready pen. He especially commended the stress which, in his paper, he had laid upon the probability of dysentery being propagated by dejections and exuria, and particularly by food and drink taken into the alimentary canal, and in confirmation, relates a fact which Dr. Chipley, late Superintendent of the Lunatic Asylum at Lexington, had once told him of—viz., that for many years in succession, the annual reports of that asylum showed the occurrence each year of a number of cases of dysentery; that during all that time there had been a drain or sewer running along the brow of the hill, from which the main spring supplying the inmates of the house, issued, but that on changing the direction of the drain subsequently, so that contamination of the water was no longer possible, dysentery ceased to make its appearance. He said he could not too strongly endorse what Dr. McMurtry had said of the necessity of very free ventilation of the rooms or wards of dysenteric patients. He thought this of almost as much importance in dysentery as in small-pox. But, he said, while commending the paper read, in the main, yet he could not do so in toto, as some of the gentlemen who preceded him on the floor had done; that while he thought it a duty to endorse, and confirm by illustration, if he could, what we approved of in debate, yet that a medical society ought never to degenerate into a mutual admiration society, but rather be looked upon as a mutual aid society; and that when a member dissented widely from opinions expressed, that as a general rule he should make known his dissent; that this becomes a duty when he believes the doctrines uttered were pernicious; that it was only under this conviction that he had presumed to say anything to-day, but that he differed so widely on some points in the treatment of dysentery with the gentleman who had opened the debate, and others who had followed after, that he thought silence no longer became him.

Though he had scarcely been in the profession long enough to be called an old practitioner, yet he had been in it long enough to have seen an entire revolution in the treatment of the disease under consideration. When he was a medical student, the standard stock treatment of dysentery was with calomel, opium and acetate of lead. When a doctor was called to treat a case of flux he rung the changes on these three remedies, and usually administered them at regular hours, day unto day, and night unto night, until convalescence set in or death closed his ministrations. This was the common treatment of the country, and as such, was taught *ex cathedra* by the professor, and daily practiced by the general practitioner. In those times when a man was pronounced to have *the bloody flux* his friends and family immediately became grave, for if death did not enter the house, the rule was a long and tedious convalescence. He recollected, he said, very well how a short time after he had entered upon the practice of medicine, upon reading the report of a debate on dysentery in the Philadelphia

County Medical Society, as published in the "Philadelphia Medical and Surgical Reporter," he was struck (he might say shocked) by the treatment thus strongly recommended by Dr. Nebinger, for this gentleman, directly contrary to the accepted classical method of the day, dwelt forcibly upon the nearly invariable success in abating every acute case of dysentery he was called to by giving large saline purgatives, which, after having had a free effect, he followed by a dose of morphia. As diametrically opposite to the common treatment as this course was, yet it did not seem to be a great while before it was extensively tried, for within a couple of years, on the war breaking out, it was soon the general practice in each army, and with what good results the monthly reports of each army attested. He might say, that since the adoption of the saline treatment, an entire change had taken place, dysentery no longer being the dreaded disease it formerly was to either physician or patient, for he thought he was not exaggerating in saying that in nine instances out of ten, when seen at the beginning, and the saline treatment used, the disease was jugulated.

As to calomel, which had been so much recommended, it had been his experience to observe much more of harm than good to have followed its prescription. He thought that in the very beginning a single purgative dose might act perhaps very much like the saline, but that the latter were far preferable. He had again and again been called to cases where calomel had been given in repeated doses, and seen the patient suffering from severe ptyalism in conjunction with all the dysenteric troubles. It was, however, he said, regarding the use of ipecac that he would especially speak. The gentleman who had opened the debate, and most of those who had followed him, had decried it. Here he must take direct issue with them. While ipecac a century ago had a good reputation in dysentery, and had as one of its old synonyms *radix anti-dysenterica,* yet its use in the disease had somehow fallen into comparative desuetude. He believed that Dr. Docker, a surgeon of the English

Army in India, was entitled to the credit of reviving it, or rather showing the proper way of using it in dysentery, which was to not allow the patient food or drink for two or three hours, or, in other words, to have the stomach as empty as possible, then to prepare the patient for the retention of the ipecac by obtunding the sensibilities of the stomach by a large dose of opium internally, or better now, since the introduction into use of the hypodermic syringe, by the injection of a full dose of morphia, to be followed by a sinapism over the stomach, then to give from thirty to sixty grains of the dry powdered ipecac with only enough water to barely wash it down, the medicine in the same or smaller dose to be repeated in six hours.

For himself he could say, that he had been called a great many times to see cases of the most violent type of dysenteric, cases in which no use had been made of salines, but the astringent plan pursued from the commencement, with no improvement, the patient gradually growing worse, and discharging blood and mucus every few minutes, accompanied with intense tormina—again and again he said he had seen such cases within twelve to twenty-four hours after instituting the ipecacuanha treatment with all this tenesmus gone, and a free fæcal evacuation to supersede the bloody mucoid discharges. There were several members of the Association, he said, in connection with whom he had seen cases, who if present could corroborate fully this observation. In no acute case of dysentery had he ever seen the remedy fail in promptly arresting the disease, and so constant and so striking had been the results, that he had gotten to look upon ipecac in dysentery as almost as much of a specific as quinine in malarial fever.

This experience, he said, might be thought exceptionally favorable, or that the type, which it had been his luck to see, had been exceptionally mild; but the members had just heard Dr. Huffman give his observations of what he had very graphically described as a severe epidemic occurring here in Kentucky many years ago, terribly fatal under the mercury, lead and opium treatment, but the face of which had been at once changed on the substitution of ipecac in the treatment. To gentlemen still inclined to be incredulous of the good effects of ipecacuanha in dysentery, he would recommend the perusal of the article on dysentery by Dr. Maclean, in Reynold's System of Medicine. They would then find that the statistics of the English Army in India showed that for a long series of years there had been a mortality of eighty in the thousand annually under the old treatment, but that on the medical directors ordering all cases to be treated by ipecac, it for a number of years past had been only about eight in the thousand. The medical statistics of standing armies, he said, were remarkable for their accuracy, and those quoted by Maclean had never been disputed. In chronic dysentery, ipecac given in small doses frequently did great good, but here, as might be expected, the results were not near equal to those in the acute form. He had once read, he said, an article by a Memphis physician, detailing a number of almost hopeless cases of chronic dysentery which were cured by exposing the rectum with the speculum, and touching daily with nitrate of silver large ulcers found there. In chronic cases he thought an ocular examination of the rectum should always be made.

Dr. Cowan thought that although there was great diversity of views among medical men about the employment of drugs in the treatment of dysentery, there were not many who did not put opium in some form or other in their prescriptions. As for himself regarding increased peristaltic action of the intestinal canal as the direct and immediate cause of that hyperæmic condition, which is the basis of all acute catarrhal inflammatory action of the mucous membrane, whether in simple acute diarrhœa or dysentery, he relied as a general thing upon opium, and had never felt that he could omit its use in the large majority of cases. Other remedies may be classed as "adjuvants," and doubtless are often very necessary, but he would regard the dismissal of opium from the list of remedies as an irreparable loss in treating dysentery.

Dr. Grinstead remarked that he had treated successfully a number of cases of dysentery last year, during the prevalence of cholera in the adjoining counties, with ipecac. He had, however, to combine quinine with it to combat malarial complications. No astringents were used.

Dr. S. L. S. Smith, U. S. A., Chairman of the Section on Progress of Materia Medica, Therapeutics, Hygiene, and Chemistry, asked for further time to make his report. He exhibited, however, as a part of his report, a very large collection of various remedies, drugs, and chemicals from the House of Arthur, Peter & Co., Louisville, which formed a chief feature of interest during the session. On motion, his request was granted.

Dr. Dunlap read a report of a case of "Rupture of the Uterus During Labor at Full Term, with Partial Escape of the Fœtus into the Abdominal Cavity," with recovery. The patient was a negress, aged forty-two years, the mother of twelve children. The fœtus was still-born. The injury was followed by peritonitis and septicæmia.

Dr. Alcorn read a report of two cases of well-marked Cerebro-Spinal Meningitis; the first occurring in a child twenty months old, delicate, and of strumous cachexia. The onset was sudden, symptoms grave, yet the decline and convalescence were rapid under the use of quinia, iodide of potassium, and alternates of mercury. Hydrocephalus followed, which resulted in death at the end of the thirty-second day from the date of the first attack. The second case occurred in a negro boy eight years old, in robust health. The attack was sudden, followed soon by complete deafness and opisthotonos. The circulation was unusually accelerated, fever high, active delirium. Quinine and calomel were given regularly, with bromide of potash to secure rest, and the patient was dismissed at the end of the tenth day relieved.

Dr. Dunlap had four cases of cerebro-spinal meningitis last year, and in only one of them, he said, did bromide of potash act beneficially.

Dr. McMurtry read a very interesting paper on the Fœtal Pulse as a Means of Diagnosis.

Dr. Cowan exhibited and explained his modification of Dr. Squire's vertebrated catheter. The sections of the vertebrated portion are oval-shaped, and held together by a series of internal sections, whose contours being the reverse of the oval-shaped, or outer series, make them dove-tail and interlock with each other in such a way as to combine the two sets of links in a *tubular chain* of great flexibility and strength. This arrangement admits of introducing a steel spring stylet, enclosed within a straight canula, from which, when the stylet is freed, an elastic curve, of any degree desired, may be given the vesical end of the catheter. He also exhibited Frey's modification of Aveling's transfusion apparatus; Van Buren's instrument for ligating hæmorrhoids high up; Squire's new catheter, etc.

Dr. McMurtry exhibited "Van Buren's and Keye's on Genito-Urinary Diseases, with Syphilis," and Dr. Smith, U. S. A., a pencil-case, and a variety of axillary thermometers, and several specimens of hypodermic syringes.

Dr. Taylor, after a brief recapitulation of the main points in the case, with some additional particulars, presented the subject of the malformation reported by him at the last meeting.* This case was one of unusual interest, and attracted a great deal of attention among the members. He was an intelligent-looking man, twenty-eight years old, and had come some seventy or eighty miles, at the instance of Dr. T., for the purpose of exhibiting his unfortunate condition before the Association, hoping that some plan of cure or means of relief might be devised or suggested. He presented quite a grotesque appearance, as he stood on the floor in his *semi-feminine* attire, which, on being raised, revealed the urine dribbling away, and the other appearances so clearly described by Dr. T. in his report. He submitted to the examination and manipulation patiently, though at times the latter gave him pain, as the vesical wall was exquisitely sensitive.

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* See "American Medical Weekly," No. 8, p. 104, and "Richmond and Louisville Medical Journal" for September, 1874, p. 332.—Sec.

Dr. Taylor remarked that a more critical examination of the parts to-day, in connection with the other members, had revealed the fact that the man had exstrophy of the bladder, which, he said, as is well known, is quite a rare affection, and was the first instance of the kind he had ever seen. This, he said, together with the fact of his having been long out of the practice of medicine, would readily account for his failure to recognize the exact nature of the deformity at once. He had recently received a letter from the mother of the man—from which he read an extract—stating that the umbilical cord was attached to this mucous surface, which, on the cord becoming detached, was covered with small depressions, resembling the pits in variola. He asked the members to suggest some means of relief, or some appliance by which he would be enabled to wear pantaloons, which he was very desirous of doing. He had tried, he said, a rubber urinal—which he exhibited—but was forced to abandon it on account of the pain and inconvenience it caused.

Dr. McKee suggested skin-grafting.

Dr. Jackson said that as it was a case of extrophy of the bladder, in which the anterior wall was absent, skin-grafting would fail. He mentioned four other cases as having come under his observation, on two of which he had seen operations performed, of which he gave the particulars—one had received some benefit.

Dr. Dunlap thought a metallic shield, well adjusted with tubes to carry off the urine, would answer the purpose. He did not see why skin-grafting would not answer as well as large flaps.

Dr. Jackson, after some complimentary allusions to the commendable zeal manifested by Dr. H. Brown at a former meeting, and Dr. Smith to-day, in illustrating their reports on Materia Medica, Chemistry, etc. etc., with so large a variety of different remedies, drugs, and chemicals, moved the thanks of the Association be voted to Dr. Smith, and the firm of Arthur, Peter & Co., of Louisville. Passed.

After a vote of thanks to the Lincoln County Medical Society for a handsome dinner and other hospitalities, and to the Good Templars for their Hall, the Association adjourned at 4 o'clock P. M., to meet at Danville on the third Wednesday in January next, when the debate will be opened by Dr. Lapsley, of Mercer county, on Acute Pneumonia.

Geo. T. Erwin, M. D., Permanent Sec.

Errata.—Page 664, for "existing" read exciting; page 665, for "known" read however; page 665, for "exuria" read exuviæ; page 665, for "quotes" read quoted; page 667, for "pulse" read flux; page 667, for "succeed" read succeeded; page 669, for "exuria" read exuviæ; page 670, for "he" read we; page 671, for "thus" read there; page 671, for "abating" read aborting; page 671, for "were" read was; page 674, for "alternate" read alterative doses; page 772, for "dysenteric" read dysentery; page 675, for "Keye's" read Keyes; page 675, for "and Dr. Smith" read and for Dr. Smith.

Hot Springs and Garland County Medical and Surgical Society.

A meeting of the Society was held at the office of Dr. O. A. Hobson on Saturday, November 7th, at 8 P. M.; Dr. E. A. Shippey, President, in the chair, Dr. P. H. Ellsworth, Secretary.

After some discussion, it was agreed that the fee-bill to govern the members of the Society in a uniform rate of charges should be postponed until the next regular meeting, to be held at the office of Dr. Ellsworth on Saturday, December 5, (proximo).

The report of the delegates to the late Arkansas State Medical Association was read and accepted.

Dr. George W. Lawrence offered the following resolution; which was agreed to:

Resolved, That we,* members of the Hot Springs and Garland County Medical and Surgical Society, and formerly of the Arkansas State Medical Association, tender to Drs. E. A. Shippey, and P. H. Ellsworth, our late delegates to the State Medical Association, our grateful thanks for the manifest sense and dignity which prompted the withdrawal of their respective names, and others of this organization belonging to the State Association, from that body.

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* E. A. Shippey, P. H. Ellsworth, O. A. Hobson, and George W. Lawrence.

Resolved, That this resolution be published in our daily papers, and copies of the same be forwarded by the Secretary of this Society to the respective medical societies of the State.

PHILLIPS COUNTY MEDICAL INSTITUTE.

At the meeting of the Phillips County Medical Institute, held at Helena on the 2d instant, the following resolutions were adopted:

WHEREAS, The recent action of the Arkansas State Medical Association, in reference to the report of its special judicial council upon the matter in controversy between certain members of the Association and others of the Profession, demands an expression from the standard-bearers of the Profession generally, and organized bodies in particular; therefore, be it

Resolved, That the action referred to was, in our minds, so far beyond the bounds of propriety, and was so destructive to the peaceful existence of medical organizations, and was so compromising to the dignity of the Profession, that we feel it our duty to express our condemnation, recording therewith our sincere regrets that the laudable aims of the framers of the Society have been so ruthlessly cast aside as a sacrifice to the designing schemes of ignoble ambition.

Resolved, That we suggest to the medical men throughout the State, who desire to elevate and maintain the moral and professional standard of their fraternity, that a convocation be called to meet at Devall's Bluffs on the fourth day of March, 1875, for the purpose of organizing a new State Association, whose threshold shall be so strictly guarded that no more occurrences so derogatory to its scientific character shall ever take place as have blighted the prospects and blotted the fair record of our Association—once so deserving of the admiration of ourselves and the Profession of our sister States.

Resolved, That on account of said action we can never affiliate with those favoring it.

ORIGINAL CORRESPONDENCE.

"Sit mihi Fas scribere audita."

LOUISVILLE, KY., November 18, 1874.

Dr. E. S. Gaillard:

Dear Sir,—Permit me to tender you herewith an account of an interesting and somewhat unusual case. On last Saturday morning I visited, with my father, a little patient (three days old) and found hæmorrhage issuing from an imperfectly developed umbilical cord, close to the annulus umbilici. The cord had been ligated in the usual place, and exhibited no sign of hæmorrhage. After endeavoring by means of styptics (Monsel's Solution) to check the bleeding, and failing, I proceeded to ligate by means of a double ligature. The needle was passed submurally, and the thread cut, twisted upon itself, and tied on opposite sides of the cord. The hæmorrhage was successfully checked by this means, and now (five days after the occurrence of the trouble) the child is doing well.

Query.—May not the hæmorrhage have been due to an imperfect development of the cord, due, in its turn, to some specific constitutional affection? (Syphilitic or strumous.)

The mother has lost three children from the same cause, who might have been saved, as was this one, by timely surgical interference.

I am, very truly yours,
EDW. VON DONHOFF, M. D.

VICKSBURG, MISS., November, 1874.

Dr. E. S. Gaillard:

Dear Sir,—I was called October 17, 1873, 7 P. M., to see Jim Gates, colored, aged about fifty years; sound constitution. On inquiring into the history of the case, I was informed that he and another negro had started out immediately after dinner on the day mentioned to kill a yearling beef, but owing to a want of confidence in their gun, or in themselves, they concluded to rope the yearling; patient agreeing to hold the rope while his companion did the shooting. The animal was restive, the gun was loaded with twelve buckshot, and it so happened that when the gun was discharged, the yearling was killed, and my patient, whose position was at the time on a hillside considerably above the party holding the gun, received three of the buckshot, one passing through the biceps muscle of the left arm; another producing a slight wound of the index finger of the right hand, and the third entering the abdomen in the right iliac region just above Poupart's ligament, and about midway between the anterior superior spinous process of the ilium and the middle line of the abdomen. The direction of the shot was upward and toward the spinal column. I found patient considerably agitated, and suffering with excruciating pains, which he referred to lower portion of abdomen, accompanied with sick stomach and occasional vomiting; pulse 90. The opening in the abdomen was small, and showed no discharge. I introduced the probe carefully to the distance of fully three inches, and thus thoroughly satisfied myself that the shot had passed into the abdominal cavity. I immediately gave one and a half grains of opium, with instructions to repeat the dose every two hours. Ordered cold wet cloths to be constantly applied to abdomen, and the patient placed in such a position on his right side as to allow any fluid collecting in the abdomen to flow out at the orifice with as little obstruction as possible. Having dressed the wounds of the arm and finger, I left the patient perfectly quiet, and returned on the following morning at 10 o'clock, to find him much in the same condition as when left the previous evening. Pulse 90; perfectly rational and quiet, and no evidence of peritoneal inflammation having set up. The wound in abdomen had begun to discharge a yellow serum, though with some difficulty, owing to the small orifice. I therefore enlarged the orifice, in order to lessen the danger from septicæmic poisoning, and urged the patient to allow as much drain as possible from the wound. As his bowels had been constipated previous to his misfortune, and finding no evidence of perforation of bowel, I ordered—

℞.—Castor Oil, ℥i.;
Spts. Turpentine, gtts. x.,

To be given at one dose, to be followed in two hours by an ordinary injection of soap and water. Ordered the continued application of the cloths and twenty grains of hydrate chloral to be given if much pain is felt. 19th, 10 A. M., pulse 85; bowels had acted well, and no evidence of inflammation, except some tenderness in the neighborhood of the wound and below it. Discharge about the same in quality, but a little more profuse. On attempting to walk, he noticed paralysis or impaired motion of his right thigh and leg. I visited the case on the 21st and 23d, but there was nothing else worthy of notice occurred in the case. The man has not yet gained the right use of his limb, but enough to allow him to pursue his usual avocations as a farm hand. From the symptoms in this case, there is no difficulty in arriving at the injury sustained and of ascertaining the position of the shot in the abdomen. It is very evident that the force of the shot was spent in passing through the walls of the abdomen, and that the missile merely dropped into the abdominal cavity, and in pressing on the nerves supplying the thigh, produced the paralysis mentioned. Doubtless the shot has become encysted, according to nature's process in these cases, and the nerve is to this extent protected, and its susceptibility to this foreign body improved. This explains why motion in the affected limb is not impaired to the same extent as formerly. The only part of the treatment in this case worthy of mention, is the enlargement of the orifice in the abdomen so as to allow a free exit for the fluid in the abdominal cavity. In every case of this kind it should be the duty of the medical attendant to provide a free outlet for the diseased secretion within the abdomen, as it is hardly possible, or probable at least, that the fluid should be again absorbed into the system without producing injuries, slight at times but often fatal. Without trespassing further on your space, I take this opportunity of adding mine to the already large and increasing testimony given in favor of this practice.

Very truly yours, W. J. Nesmith, M. D.

CHEMICAL AND PHARMACEUTICAL.

"Diruit, ædificat, mutat."—Hor.

Incompatibility of Fowler's Solution and Magendie's Solution.—A paper, by Mr. J. Vanderbeugle, was read before a meeting of the Alumni Association of the New York College of Pharmacy, in which the author answered several queries relating to the nature, occurrence, and prevention of the precipitate which forms when liquor arsenicalis and Magendie's solution of morphia are mixed together. It was found that the precipitate consisted of morphia, without a trace of arsenic; that its formation is due to the alkalinity of the arsenical solution; and that it may be easily prevented by acidulating the mixture (?) with sulphuric acid.

Deodorization of Carbon Disulphide.—A great obstacle to the use of this important body is the detestable odor which almost all samples give out, and which is especially objectionable when about to be used in medicine as an anæsthetic.

M. Yvon, of Alfort, proposes a process which is at the same time rapid, economical, and efficient. It consists in the addition of copper turnings to the disulphide. It is not necessary to agitate. The disulphide soon loses its color, and has then an ethereal odor free from all unpleasantness. Millon has employed reduced copper for the same purpose.

A Hill of Sulphur.—One of the most remarkable deposits of native sulphur as yet discovered, is a great hill composed of the almost pure article, found some two years ago at a distance of 30 miles south of the Union Pacific Railway, and 900 miles west of Omaha. This marvellous deposit is found to consist almost wholly of sulphur, containing only 15 per cent. of impurities. The best deposits heretofore available are those found in Sicily. The principal supplies for the manufacture of sulphuric acid come from there; the deposits contain 35 per cent. of impurities and 65 per cent. of sulphur. Our Western sulphur hill, therefore, is much more valuable, and promises to become ere long of great importance to the country.—*Tenn. Pharm.*

Preservation of Vaccine Lymph.—Dr. Preston spreads the lymph on a morsel of paper, by means of a camel's-hair pencil charged from the vaccine vesicle; he then allows it to dry. If the vaccine matter is to be kept a long time, the paper should be covered with a light coating of albumen. In order to make use of this prepared paper, it is only necessary to moisten it slightly with the breath, and then apply a fragment to the abraded skin.

Ozone Generator.—The purification of the air of chambers by means of ozone has been accomplished, theoretically at least, by the invention of an apparatus which consists of a basin of water with several glass tubes, open at both ends, and enclosing sticks of phosphorus. These tubes are so placed that one end rises somewhat above the surface of the water. The whole is covered with a glass shade with several openings to admit the passage of the ozonized air. Evidently the great hindrance to the general adoption of such an instrument lies in the poisonous and inflammatory nature of the phosphorus, but the object seems so desirable, that it is to be hoped this difficulty will yet be overcome.—*Chem. and Drug.*

Parenchymatous Injection of Carbolic Acid.—Hüter strongly recommends the injection of a two-per-cent. solution of pure carbolic acid in water as the most active antiphlogistic remedy for all forms of parenchymatous inflammation. He makes the injection in the position where the lymphatics bring the acid in direct contact with the inflamed tissue. The result of such parenchymatous carbolic injection he describes, from experience, as being miraculous; and he says there are no material impediments to its use in organs such as the lungs, spleen, etc., but he has not as yet practiced it in these viscera.—*Centralblatt.*

A New Treatment for Burns.—Dr. M. O. Baldwin, of Kansas, writing to the "Chicago Medical Journal," advises the following treatment for burns:

For a considerable time it has been our custom to use eggs, the white and yolk together, well beaten up, as a local application, and the remedy has given a great degree of satisfaction. Our manner of applying it, is, after the eggs are well beaten, to saturate old and well-worn pieces of muslin therein, and spread over the injured surface, two or three layers thereof being superimposed; the relief is immediate and complete, The dressing should be renewed each twelve hours; meantime, should it become dry, it may be moistened by dripping water over it. After the first two or three dressings, we add a little carbolic acid and glycerin, to correct any disagreeable odor and also stimulate the healing process. The dressing is easily removed, and leaves a clean, fresh-looking surface, not attainable under the old processes.

Anthemis Cotula as an Epispastic.—The above plant, being the common "*May Weed,*" or "*Dog Fennel,*" is too well known in this country to require description. The flowers of the plant resemble those of imported chamomile, and are said to possess similar properties. In domestic practice, they have been employed as an emmenagogue, and a tea of the leaves has been found efficacious in colic and dysentery. In large doses, it is said to be a prompt emetic. But the property to which we would especially draw attention in this weed, is its power of blistering the skin. The green leaves, bruised and applied to the skin, will produce epispastic effects, equal if not superior to cantharides. If kept on long after vesication commences, they will generally make a painful and troublesome surface sore, covered with pustules, which require several days to heal—

a property which may be turned to good account in cases demanding a powerful and permanent counter-irritation.

Caustic Lime in Onychia Maligna.—Prof. Vanzetti has written a pamphlet on the treatment of onychia by the application of quicklime to the seat of the disease. Having first tried the method recommended by Morehouse of using nitrate of lead, he thought he could improve on it by using some substance which would abort and dry up the pus, and accordingly tried quicklime upon two patients who presented themselves at the hospital with onychia of the feet—in one case spontaneous in its origin, in the other following an injuiry. In one case the lime was left in contact with the affected part without renewal; in the other it was frequently renewed. Both did well, and had perfect reproduction of the nail.—*Lo Sperimentale.*—*New Remedies.*

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

"Judex damnatur cum nocens absolvitur."

TRANSACTIONS OF THE MEDICAL ASSOCIATION OF THE STATE OF ALABAMA, TWENTY-SEVENTH SESSION, 1874; vol. i., 8vo., 427 pages. BARNETT & BROWN, publishers, Montgomery, Ala. Reviewed by J. B. GASTON, M. D., Montgomery, Ala.

NOTE.—Though this volume has already been reviewed, the present notice contains so much of value and interest, that it is published with pleasure.—ED.

Although the epidemics of the past year—yellow fever, cholera and dengue—occupied much of the time of the Association, the variety of subjects discussed was quite sufficient to give spice and interest to the occasion.

The President's Address, by George A. Ketchum, M. D., on "The Sanitary Needs of the People of the State and the Related Obligations of the Medical Profession" teaches in strong and sometimes eloquent language, that the obligations of the State to preserve the health of her citizens, is quite as imperative as that of protecting their lives and their property; that, in fact, the former duty is but a corollary of the latter.

This subject is of great national interest, and statistics of death rates largely diminished—fifty per cent. in some cases—by attention to the laws of hygiene, must impress upon thoughtful physicians the conclusion that more can be done in diminishing the ratio of mortality from disease by hygiene than by therapeutic agencies. The address is a valuable State paper, and we are pleased to see that the Association has printed one thousand extra copies as "a means of calling the attention of the people of the State and the attention of the General Assembly to the subject." State and municipal authorities should be taught that they, quite as much as the Medical Profession, hold the health and the lives of the people in their hands.

YELLOW FEVER.

The Transactions contain two papers on yellow fever—one by R. F. Michel, M. D., and the other by Jerome Cochran, M. D. Dr. Michel tells us: (1) That the fever was brought from Pensacola to Montgomery by *two persons*," and refers to his "History of the epidemic, published in the "Charleston Journal and Review," January, 1874, where he gives an account of the introduction of the disease and its propagation from person to person, and from house to house, until it became epidemic.

(2) That there were five hundred cases of the fever in Montgomery, with one hundred and eight deaths.

(3) That a remarkable number of colored persons was attacked, but that five died.

(4) That malarial and other fevers were rarely visible after the appearance of yellow fever, and cites authorities to prove that this is usually the case in epidemics of this disease.

(5) That there was no dengue in Montgomery in 1873; that the differences between dengue and yellow fever are "well marked and characteristic," and that dengue is an exanthem, and "not hæmorrhagic in character."

(6) That "the characteristic features" of black vomit were "*first insisted upon* by Dr. Middleton Michel in the 'Charleston Medical Journal,' May, 1873," and occupies four pages of the Transactions, with an abstract of his paper.

Most of these points are very creditably sustained, but there are some exceptional features, and to these we will briefly allude. At the outset, Dr. Michel arrays himself under the banner of the non-contagionists, but in the same sentence with *conspicuous impartiality*, tells us that he "believes as much in the local origin as in its being an exotic." It is well that he thus early enrols himself as a "non-contagionist," for in the absence of such declaration, his "History" might with great justice be pleaded in bar of any such claim in the future. The "History" gives, we venture to say, as striking an illustration of the portability, the importation by persons, the propagation from person to person, the contagiousness of yellow fever as ever has been published.

Most physicians, we presume, would be very ready to admit that dengue is "not hæmorrhagic in character"; yet we are sure all would not concur in some of the reasoning by which our essayist endeavors to establish this conclusion. "Pathologically considered, dengue," says he, "is one of the exanthemata, and being such, I do not believe it hæmorrhagic in character." And again in the conclusion of his argument on this subject, "I must therefore repeat, that pathologically considered, dengue is one of the exanthemata, and can not be regarded as hæmorrhagic in character." Now, if the major proposition—no exanthem is hæmorrhagic—could be established, the conclusion (if we admit Dr. Michel's view of the exanthematic nature of dengue) would follow necessarily. But since the Doctor mentions one hæmorrhagic exanthem—"variola hæmorrhagica"—and since others will occur to every intelligent physician, the untenable character of his major premise need not be further insisted upon. But not only is his major proposition false, but his minor—"dengue is an exanthem"—seems not to have the sanction of universal assent.

Dr. Anderson says, "in some epidemics of the disease in Mobile the eruption has been the exception, not the rule." The usual course of argumentation is to proceed from the known or the admitted to a comprehension of the unknown or the doubtful. In the argument under consideration the rule seems to have been reversed. The premises, more probably than the conclusion, need to be established.

A claim of priority of publication (which I construe the language of our author—already quoted—with reference to Dr. Middleton Michel's paper on black vomit to be) should, in justice to the medical public and to the party for whom the claim is made, be based so far as practicable upon the exact language of said party. This Dr. Michel has not given, or if he has (and the style and form of expression at times seem to indicate that the investigator himself is speaking) he has not used any marks to indicate where said language begins and where it ceases.

That this paper constituted at the time of its publication a valuable contribution to the literature of the subject, can not be doubted by one who observed the frequent and favorable allusion made to it by Dr. La Roche. That it contained a more detailed and systematic account of the characteristic features of black vomit than any previous publication, I am inclined to believe. But the assertion of Dr. R. F. Michel that "the characteristic features" of black vomit were "*first insisted upon* by Dr. Middleton Michel in the 'Charleston Medical Journal,' May, 1853," requires, to say the least of it, a very thorough revision.

Dr. Henry Warren, 1740, insisted that black vomit was "mortified blood." Louis, 1828, insisted that "the black vomit is nothing but fluid blood, altered according as it has remained a longer or shorter time in contact with the mucous membrane of the stomach." La Roche, "American Journal," 1854, while commenting on Dr. Middleton Michel's paper, and after stating that the microscope was first applied to the examination of black vomit in 1845, by John Davy, "with results similar to those obtained more recently," says that proofs of the sanguineous nature of black vomit "had long * * * by numerous and competent authorities as perfectly conclusive." Dr. J. C. Nott, "American Journal," April, 1845, says that "black vomit is blood exhaled in its natural state from the capillaries of the stomach, intestines, and even the bladder, and changed black by the secretions with which it comes in contact; this chemical change, my facts go to show, is produced by one or more acids." "It invariably turned litmus paper red,' and the filtered aqueous portion (which he describes in some cases as "limpid like water," in one as "light green," and in others as "deep brandy or rum color") "in several cases effervesced strongly with carbonates." He attributes the "burning or scalding sensation in the stomach" to this "presence of acid," and "the varieties of black vomit" to "blood, acids, mucus and aqueous liquid, mixed in various proportions. Give me blood, muriatic acid (or, I presume, any other acid) and gum-water, and I will make it to suit the notions of the most fastidious pathologists; perfectly black, brown, reddish, etc." In all these *characteristics* Dr. M. Michel follows Dr. Nott pretty closely.

Dr. J. L. Riddell, "New Orleans Journal," ix., 1852, says: "The black color is due beyond question (he insists upon it) to blood which in all cases examined by me bore the appearance of having been materially modified by acid. Most of the blood corpuscles seemed to have been disintegrated, broken down into small granules and irregular masses. Clots (microscopic) generally abounded, containing whole corpuscles, generally spherical, and smaller than the normal size; from .00020 inch in diameter to .00030; the usual measurement being .00025." In one specimen "most of the corpuscles presented nearly their usual appearance, measuring from .00025 to .00033." Dr. R. made artificial black vomit by the addition of hydrochloric and other acids, and found "that the corpuscles resembled closely those usually found in black vomit." He discovered an abundance of epithelial cells, and gives their forms and the measurements of cells, nuclei and granules.

Other "vital organizations" are described, which Dr. R. thinks have no "special agency in producing or maintaining yellow fever."

From the foregoing extracts it appears that the description of black vomit published by Dr. Middleton Michel, May, 1853, had been anticipated, as regards every essentially distinctive quality of that liquid, by other writers, and that Dr. R. F. Michel is not sustained by the facts in asserting that "the characteristic features" of black vomit were "*first insisted upon* by Dr. Middleton Michel in the 'Charleston Medical Journal,' May, 1853."

Although we have excepted to several propositions of Dr. R. F. Michel's paper, there is much in it that merits commendation. It has its excellencies, and to those, did space permit, it would give us pleasure to invite special and favorable consideration.

The Yellow Fever Epidemic of 1873, *by Jerome Cochran, M. D.*—Part first gives brief historical sketches of the epidemic in New Orleans, Memphis, Shreveport, Pensacola, Montgomery, Calvert, Greenwood, and Mobile.

The number of cases and deaths which occurred in these places is given as follows:

	Cases.	Deaths.
New Orleans	2,000	226
Memphis	10,000	2,000
Shreveport	3,000	759
Pensacola	600	61
Montgomery	300	102
Calvert	450	125
Mobile	210	35
Total	16,760	3,380

A review of the above-mentioned sketches teaches that the fever was brought to some of these places by vessels, to others by persons, and in two places—New Orleans and Shreveport—the origin is still involved in some obscurity.

It was brought to Pensacola by the Golden Dream from Havana, which reached the harbor on the 10th of June, after having lost, at sea, eight of her crew by yellow fever. This vessel "was placed in quarantine, cleansed, fumigated and white-washed, and detained twenty-four days before she was allowed to approach the city. On the 2d of August, just forty-three days after the arrival of the Golden Dream—a period marked by no sickness on said vessel so far as we are informed—a sailor, eight days on board, was attacked with yellow fever, and "died with black vomit on the 5th." "The first three cases that occurred in the city," had no direct communication with the Golden Dream. They were, however, inmates of Mr. Orthong's residence—just two squares from the water's edge—and he had visited the vessel repeatedly." It was, therefore, not infected persons, but an infected vessel that brought the fever to the harbor of Pensacola. It was not in infected persons, but either in Mr. Orthong's healthy person, in his clothing, or "as the more probable opinion seems to be, in the invisible wings of the swift winds that the seeds of the pestilence found agents of transportation" into the city.

The steam tow-boat Bee "reached Memphis on the 10th of August, and remained there several hours." Two deck passengers, sick with yellow fever, were put ashore in Happy Hollow, and died the next day—one in Riley's shanty, Happy Hollow, and the other at the Adam's-street station-house. From the latter place the disease did not spread. "The first victim claimed from the population of the city was a young man who rendered some humane assistance to the poor stranger who died at Riley's. Riley himself was then stricken, and soon died." The disease was confined to Happy Hollow for "some weeks," and thence it spread throughout the city. From this account it seems probable that the fever was propagated in Memphis not from the tow-boat Bee, but from the anonymous stranger who died in Riley's shanty.

In Mobile, Montgomery, Calvert and Greenwood, the fever was introduced and propagated by persons who had come from localities where the epidemic was prevailing.

In connection with the progress of the fever in these several localities, the following circumstances seem to be especially noteworthy:

In Mobile the jail escaped altogether, and in Memphis "the jail which was in the heart of the district that suffered most severely, escaped invasion until the 8th or 10th of October." These prisons are surrounded by high walls, and had little communication with the environs. In Memphis heavy rains had no perceptible effect on the fever. In Shreveport the fever became epidemic in *eighteen days* after the appearance of the first case. The blacks were attacked almost as generally as the whites, but the mortality amongst them was very much less. As additional testimony on this point, I quote from Dr. E. D. Fenner's History of Yellow Fever in New Orleans, 1853, the following: "During an epidemic, he (the negro) will take the fever almost, if not fully as readily as the white; but it will be altogether milder and less dangerous in its tendency."

Death from failure of the heart's action was observed in several instances; but there was no confirmation by post-mortem examinations of the views of Dr. Joseph Jones in reference to the fatty degeneration of that organ in such cases. By the way, we observe that Dr. Nott, "American Journal," 1845, says, "the heart in some cases was found softened and flabby."

Dr. Faget's views with regard to the relation between temperature and heart-fat seem to have found some confirmation during this epidemic.

Part II. contains an admirable discussion of *lessons of the epidemic.* In this part Dr. Cochran traces very clearly the revolutions and modifications of medical opinion during the last twenty years with regard to the propagation of yellow fever and its relation to our endemic paludal fevers. "Within the last twenty years," says he, "and very noticeably within the last ten years, the tendency of opinion on all these points has undergone considerable change. The doctrine of the affiliation between malarial fever and yellow fever has been completely overthrown, never any more to be revived. The doctrine of the transmission of yellow fever from continent to continent, and from city to city, by telluric or atmospheric waves, has been pushed into the background of speculation. And the doctrine of direct importation has been so thoroughly established by the concurrence of multitudes of facts as to admit no longer of controversy."

The doctrine that yellow fever is sometimes propagated from "germs that have remained over from some previous epidemic; germs that have been able to maintain their vitality from one season to another because of mild winters and other circumstances favorable to their preservation and development"; "This doctrine," says Dr. C., "if true at all, is true only of one or two of our Gulf cities, and only occasionally even of them."

With regard to morbid poisons, he cites the microscopic observations of Beale on the contagion of vaccinia; of Beale and Burdon Saunderson on the contagion of cattle plague; of Chaveau, of Lyons, on the contagia of small-pox, sheep-pox, cow-pox, and farcy; of Coze and Feltz as to the nature of the several contagia of measles, scarlet fever, typhoid fever, and septicæmia; of Klebs on pyæmia and septicæmia; all of which, with similar investigations by other observers, go to show a general agreement amongst authorities, that the septic agents of zymotic diseases are albuminous, colloidal, solid, and particulate. Some, with Klebs, believe that these particles are the spores of a special fungus. Others, with Beale, hold "that they are particles of living protoplasm of the diseased organisms; particles which have undergone organic degradation and functional perversion, according to the character of the pathological movement which seems to invest them with specific poisonous properties." Dr. C. admits that no one has seen the germs of yellow fever, yet affirms, upon analogical grounds, that such germs do exist, and asserts that "there is no other theory capable of explaining the phenomena of the disease."

Both of the essayists on yellow fever and one of those on cholera, although advocates of the importation of these diseases by persons, and of their propagation from person to person, speak of them as infectious, and of their causes as infectious. One of them, indeed, declares himself a "non-contagionist."

In view of the controversy with regard to the mode of communication of yellow fever, carried on so bitterly a few years ago between the contagionists and non-contagionists or infectionists, we must consider this a somewhat questionable use of terms. The signification which the highest authorities on a subject attach to the terms used in their discussion of it, ought to be conclusive as to the proper use and meaning of said terms. Etymology throws little light upon the *differentia* of such terms. As in pronunciation, so in definition, the custom of the best writers and speakers determines the rule.

From such sources, speaking at a time when the origin of yellow fever in particular localities was very prominently before the Medical Profession, we learn that *contagion* was applied to a poison produced by disease in living beings, and possessing the power of inducing like morbid actions in other healthy living beings, either by contact, near approach, or through the medium of external bodies, such as fomites or the atmosphere impregnated with the poison; and that *infection* was applied to a poison not portable by the sick or convalescent, not communicable from person to person, and not produced as above mentioned, but originating in a concurrence of material and dynamic agencies external to human bodies. We do not hold that, at any time, there was a universal agreement in these distinctions, but we do claim that, at the time above mentioned, they were generally adopted by writers on yellow fever in this country. Now, does there seem to be any change in the use and signification of the term contagion? for Niemeyer, October, 1870, says that "the word contagion is universally used in the sense that diseases which are transferred from sick to healthy persons are contagious." The distinction with reference to infection was never so generally recognized. It, however, has been recognized and adopted by some of the highest authorities of the last fifty years.

QUARANTINE.

The impossibility of absolute quarantine, difficulties of local administration, and difficulties growing out of the imperfections of our scientific knowledge are admitted. Nevertheless, in view of the exotic origin and the portability of the germs of yellow fever, the utility of quarantine is insisted upon. And since the general government regulates foreign commercial intercourse, its intervention is invoked to make and enforce such regulations as may be necessary to protect our coasts.

DISINFECTION.

The discussion of this subject is conducted with earnestness and ability; and a trenchant pen is directed against the protective virtues of carbolic acid disinfection as it has been practiced in some of our Southern cities, especially New Orleans and Mobile. The utility of a certain restricted use of disinfection as a prophylaxis of yellow fever is admitted, "but all attempts," it is claimed, "to destroy the multitudinous germs of pestilence which, in epidemic seasons, are scattered broadcast through the illimitable kingdoms of the air, must be abandoned as altogether hopeless." You can disinfect a ship, but you can not disinfect a city. You can disinfect the rooms of a house, but "to disinfect all *out-of-doors* is a problem of more embarrassment and difficulty than seems to be generally appreciated." An atmosphere so saturated with disinfectants as to assure the destruction of disease germs, would, it is held, also prove fatal to human beings and domestic animals. The ineffectual disinfection of the Golden Dream, herein before mentioned, illustrates the vital tenacity of the germs of yellow fever, and affords some confirmation of the views above stated. "In view of the appalling mortality which has, on several occasions, occurred in connection with the use of carbolic acid," we are advised to be careful while attempting to suppress yellow fever with carbolic acid, that "we are not contributing something to the suppression of the lives of our fellow-citizens."

YELLOW FEVER AND DENGUE.

This paper, of sixty-two pages, concludes with a brief discussion of the nature of dengue and the characteristic differences between it and yellow fever, to which we will allude in another place.

Report on Dengue, by W. H. Anderson, M. D.—The facts and opinions of this paper are entitled to great respect, by reason of the large experience, the temperate and unprejudiced judgment, and the habitual accuracy of the author.

Attention is called to the "many different phases * * * mentioned by intelligent authors who have described dengue in their particular localities," and our author says that the accounts of Dickson, Arnold, Campbell, and Fenner, "would not enable us in Mobile to recognize our dengue as the same disease which fell under their observation." Little importance is attached, as diagnostic symptoms, to the arthritis, the swelling of the joints, the decline of fever with a sweating stage on the third day, and its reäppearance with insomnia, restlessness, nausea and vomiting, followed by an eruption, with relief of the above-mentioned distressing symptoms on the fifth or sixth day. These symptoms Dr. A. has "not witnessed; certainly not in the succession mentioned."

"In some epidemics of the disease in Mobile, the eruption has been the exception, not the rule." In the symptomatology of the disease, the fact is mentioned that "there is little desire for cold drinks."

In the diagnosis, both Dr. Anderson and Dr. Cochran (the latter cites Dr. Ross as his authority) call attention to the desire for cold drinks in yellow fever as distinguishing that disease from dengue. In my limited experience with dengue, the desire for drinks has been very capricious in many instances. In one case nothing gave satisfaction until Congress water was tried. It was highly relished, and that, too, by a person not at all fond of it while in health.

The opinions expressed in the Transactions by different essayists with regard to the pathology of dengue, afford a signal illustration of the adage that *doctors will differ.* Dr. Michel, following Dickson, regards dengue as an exanthem. Dr. Cochran with Faget, considers it a mucus fever, but differs with Dr. F. as to its paludal origin. Dr. Anderson holds that "the nervous system bears the brunt of the attack"; believes it to be "an affection of the ultimate filaments of the cerebro-spinal nerves after they enter the muscles." Attention is called to the fact that the extreme motor filaments may be paralyzed by a poison, while the trunk will not be affected by exposure to the same agent. The effects of woorara, when applied to the trunk and when applied to the ultimate filaments of a motor nerve, are mentioned in illustration of this proposition. So, it is held, the dengue-poison may produce morbid impressions upon the ultimate filaments, and be innocuous as regards the trunk of a nerve. The discussion of this branch of the subject, and the interpretation of the various symptoms of dengue in accordance with this hypothesis, are both interesting and ingenious. And although the Profession may not endorse Dr. Anderson's views with regard to the particular part involved, it will, we think, accept the general proposition, that "the nervous system bears the brunt of the attack."

"As to its being allied in any way to *yellow fever,*" Dr. A. "can see no shadow of evidence."

No novelties of treatment are proposed for the acute attack. Electricity, however, which is valueless during this stage, is recommended as an excellent remedy during convalescence. "No tonic, however, is as bracing as cold weather."

Cholera in Birmingham, 1873, *by M. H. Jourdan, M. D.*—Mr. Stellar, the first sufferer and victim of cholera in Birmingham, received his "bed and bed-clothes" from Huntsville a few days before his attack, on the 2d of June, and "as cholera was prevailing at Huntsville at the time," (?) Dr. J. concluded that the infection was brought in this bedding to Birmingham. But when we are told by Dr. Diment, of Huntsville, in the next paper, that the *first case* of cholera in that city occurred on the 3d of June—the very day of Mr. Stellar's death—the anomaly of an offspring older than its parent is at once presented, and affords a sufficient excuse for our questioning the accuracy of the above-mentioned conclusion. Dr. Jourdan seems to be a careful and accurate observer of diseases, and his experience with cholera has developed some interesting facts and observations.

"On the 5th day of July, Mrs. Hale had slight symptoms of diarrhœa, and concluded to go to her father-in-law's, at the top of Shades Mountain, about eight miles in the country. The next day she was taken with cholera and died in twenty-four hours. Her mother-in-law, who waited upon her attentively and was constantly in the room with her until her death, took the disease in two days thereafter, and died in twelve hours."

The use of Cistern-water Afforded no Protection whatever against the Disease.—Dr. J. favors the moderate use of ice and ice-water by the sick, but condemns their free use as injurious and dangerous, the opinion of Reynolds, Aitken, and Yandell to the contrary notwithstanding. In the treatment of the cramps of cholera, special attention is directed to the application of large dry cups along the spine from the occiput to the sacrum as never having failed to give relief.

Cholera in Huntsville, 1873, *by J. J. Diment, M. D.*—This paper gives a brief account of an epidemic in Huntsville, which, in a few weeks carried off fifty-one of its inhabitants; seventeen white and thirty-four colored. The period of incubation in cholera is usually short, placed by Niemeyer at from thirty-six hours to three days, and by others at from eight to twelve days, seems to have been extended in one case to fourteen, and in another to twenty-three days. The only person attacked at Johnson's Mills, nine miles from Huntsville, was a gentleman who had left Huntsville two weeks previously. One person was Monta Sans, four miles from town, who had been absent from Huntsville twenty-three days.

This is the last of a series of papers on the epidemics of the year 1873, which are, in the main, very creditable to their authors and the Medical Association of Alabama.

MISCELLANEOUS.

"Non omnes eadem mirantur ament que."

Removal of a Tumor from the Bladder.—Professor Billroth has recently performed another singular and daring operation, which is described by a correspondent to the "Irish Hospital Gazette"—viz., the removal of a tumor from the urinary bladder of a boy, twelve years of age. Until ten months before the operation the boy had been very healthy, but began then to complain of pain in passing urine. The pain was not very severe, and was located in the glans penis and the region of the bladder. The urine soon became cloudy, and the desire to void it came so suddenly that the boy would not have time to reach the urinal. The case was supposed to be one of calculus, and was sent to Billroth for an operation. No calculus could be detected; but on examination made after the bowels had been thoroughly emptied, a tumor in the region of the bladder could be distinctly felt through the abdominal walls. It could also be felt by examination per rectum, and was slightly painful on pressure. Its consistence was very much like that of a fibroma, and it seemed to spring from the bladder. Further examination showed that the walls of the bladder were greatly hypertrophied; the sound, however, came in contact with no hard body within the viscera. When the fever following the last examination had abated, the following operation was made. Lateral lithotomy was first performed, with the intention, if the tumor proved to be adherent to the bladder, to make the high operation and remove the growth. When the finger was passed into the bladder through the opening in the perinæum, a tumor the size of an apple was felt to be growing from the posterior wall, but its pedicle could not be found. The high operation, over the symphysis pubis, was at once performed, some difficulty being experienced in making an opening into the bladder, owing to the danger of opening the peritoneum, in consequence of the contracted state of the organ. The tumor grew with a short and tolerably broad pedicle from the posterior wall of the bladder, and very high up. Notwithstanding an enlargement which was made of the upper wound, the opening still proved too small for the passage of the tumor, and an effort was made to break up the latter with the fingers. At first only small portions of the rather soft tumor were detached, but finally the whole of it was torn from its pedicle, and by compressing its centre it was extracted through the upper wound. The portion of the bladder to which the pedicle was attached was then drawn through the aperture; the pedicle was dissected off, to do which effectually required so deep a dissection as to imperil again the continuity of the peritoneum. Two small arteries were secured, and the ligatures were carried out through the perineal wound. After the operation the patient continued relatively well, having but slight fever. The wounds, at the time of writing, look remarkably well, notwithstanding their contusion during the operation. Microscopic examination showed the tumor to be a pure myoma.—*Ex.*

The Drainage of Buildings.—Dr. Joseph Wilson, Medical Director U. S. Navy, in the "Sanitarian," says:

The proper drainage of buildings is a matter of great importance. Cellars may be wet, stables not very dry, water may drip from the eaves, cutting holes into the earth and making puddles. The water from such puddles filters directly into the cellar, so that old houses in the country are very frequently dangerous to life, on account of the water settling into the cellars. A damp cellar may sometimes be made dry by making a sink in it, as already described for the fields. Cellars are sometimes made in such wretched places that they need drain-pipes to carry off the water. In arranging any of this kind of work about a stable, it is necessary to be careful that the draining of the stable does not filter into any water required for domestic use. Water should on no account be allowed to drip from the eaves; it is a great nuisance, undermining foundations and rapidly destroying buildings.

The inlets of drains require attention. When they empty into an offensive sink or sewer the gaseous emanations follow up the pipes for very great distances. This nuisance is prevented by various arrangements, called traps; the most simple generally available is a simple curve in the pipe, so that at a particular spot it remains full of water. Inlets have traps, not only to stop offensive gases, but to prevent the drains from becoming choked by rags, gravel, kitchen-slush, etc. These inlets are of various forms, according to the object to be accomplished.

It seems very important to ventilate the interior of these drains about buildings. Air confined anywhere, even in a clean room, becomes offensive, probably unhealthy, with a disagreeable smell of closeness, and confined with filth in a drain or sewer, it must be infinitely worse. Drains built tight, with traps, etc., so that there is no ventilation of their interior, generate very poisonous gases, which are ready, on the occurrence of any small leak, to escape and poison everybody who happens to go near them. The best arrangement for ventilators in houses is to have a separate flue built in the chimney stack expressly to receive the ventilator pipes. Thus the air from the drain is discharged high in the atmosphere, in a position to be mixed with smoke; and the noxious properties are destroyed, the smoke, whether of wood or coal, containing about the best chemical disinfectants known.

Canal Boats.—In response to a letter from the Local Government Board, the Nantwich Rural Sanitary Authority, having directed their attention to the evils accompanying overcrowding and confined dwelling space in canal boats, delegated the duty of making suggestions for the remedy of such evils to Mr. F. A. Davenport, the sanitary inspector, and Mr. Peach, the clerk to the authority. These gentlemen have accordingly submitted various recommendations, to this effect—(1) that no woman, girl, or boy under fourteen years of age be employed or sleep in canal boats; (2) that the cabins be provided with sufficient means of ventilation; (3) that at least 200 cubic feet of air space be allowed for every person using the cabin as a sleeping apartment; (4) that powers be given to officers of sanitary authorities to search a boat for infectious disease, and to take steps for the removal of any such cases; (5) that canal boats be subject to periodical inspection, and that captains of boats be liable to fine for infringing the authorized regulations. With regard to the apparent hardship of depriving the boatmen of their wives and families whilst on board, it is pointed out that this would not be so great in their case as that of seamen, and, even if it were, this consideration should not be allowed to weigh against the manifest advantages to the class of people in question, in respect of health and morality, which would accrue from the adoption of the regulations.—*London Lancet.*

Decimal Weights in Prescriptions.

Troy.		Metric.	
1-60	grain.	.001070	Milligramme.
1-48	"	.001350	"
1-32	"	.002025	"
1-20	"	.003240	"
1-16	"	.004050	"
⅛	"	.008100	"
¼	"	.046200	Centigramme.
⅓	"	.021600	"
½	"	.032400	"
1	"	.064800	"
2	"	.129600	Decigramme.
3	"	.194400	"
4	"	.258200	"
5	"	.324000	"
6	"	.388800	"
7	"	.453600	"
8	"	.518400	"
9	"	.583200	"
10	"	.648009	"
15-4322	"	1	Gramme.
20	or scruple.	1.296000	"
30	or drachm ss.	1.944000	"
60	or drachm.	3.888000	"
120	or drachm ij.	7.776000	"
240	or ounce ss.	16.552000	"
480	or ounce.	31.104000	"

To reduce Centigrade to Fahrenheit, multiply by 9 and divide by 6, then add 32.

To reduce Fahrenheit to Centigrade, subtract 32, then multiply by 5, and divide by 9

Fluid Apoth.		Fluid Metric. Cubic centimetres.
Minim	1	.0616125
"	2	.1232250
"	5	.3080625
"	10	.6161250
"	20	1.2322500
"	30	1.8483740
Drachm	1	8.6967500
"	2	7.3935000
"	3	11.0902500
"	4	14.7870000
Ounce	1	29.5740000
"	5	59.1480000
"	4	118.2960000
O	1	47318400000
C	1	3785.4720000

= 3 Litres.

Exostosis of Femur Treated by Subcutaneous Fracture.—Mr. Maunder treated a globular exostosis of the femur, with a narrow pedicle, by deliberate subcutaneous fracture. The result has been highly satisfactory, though but little success was anticipated. The osseous tumor has become reättached to the femur; but its head, instead of projecting externally, now lies toward the centre of the popliteal space. The original tenderness no longer exists, and the leg, which could not previously be fully extended, can now be straightened, and is perfectly useful. By an operation simple and devoid of danger, a result practically equivalent to that obtained by a more formidable proceeding (excision) has been gained.—*Lancet.*

Midwifery Fees.—It is an established ruling, that when a patient to be confined in a few weeks or months retains the services of a medical man for the occasion, and yet does not at the time send for him, as arranged, the medical man is entitled to the fee as if he had attended in the ordinary way. The justice of this is obvious, inasmuch as the undertaking is of the nature of a contract, binding the medical man responsible and inconveniently. But judges have their crotchets as well as other people. And the last one we have heard of is thoroughly original. The learned judge of the Clerkenwell Court, contrary to other decisions—even of his own, if we mistake not, in an identical case,—ruled that in the absence of any evidence of the husband having authorized his wife to make such an engagement he was not bound by it. Would the learned judge venture to carry this principle out to cases where the medical man has attended? The decision is fraught with injury to medical men, and even their patients. And as the plaintiff in this case has, in a previous case, had a judgment in his favor from the self-same judge, and as the difficulty raised by the judge is entirely new, we hope when the question is raised again before him he will see it to be necessary to differ from his fellow-judges and from himself on the subject. The public has quite as much interest in upholding the sacredness of midwifery contracts as the Profession has.—*London Lancet.*

ANATOMICAL VERSES.

I list as thy heart and ascending aorta,
  Their volumes of valvular harmony pour,
And my soul from that muscular music has caught
  A new life midst its dry anatomical lore.

Oh! rare is the sound when thy ventricles throb,
  In a systolic murmur measured and slow,
And thy auricles answer in a rythmical sob,
  As they murmur a melody monotonously low.

Oh! thy cornea, love, has the radiant light
  Of the sparkle that laughs in the icicle's sheen,
And thy crystalline lens, like a diamond bright,
  Through the quivering frame of thine iris is seen.

Oh! rare is thy voice as it sighingly swells
  From their daintily, quivering chordæ vocales,
Or ringing in clear tones through the echoing cells
  Of the antrum, the ethmoid, and sinus frontalis.

And as stately the heave of thy maidenly breast,
  As a ship fast nearing the land,
And as soft as the vesicular sigh in thy chest,
  As that of the ripple as it ebbs on the sand.

But alas! 'tis with many forebodings I pen
  Anatomical verses thy beauty to praise;
For I fear me my studio will never again
  Bring the solace they gave in my happier days.

Thou hast stolen the charm from my studio dim;
  From dissection I turn with embittering wrath.
Thou hast stepped 'twixt me and my skeleton grim;
  Oh! lady, fair lady, why crossed you my path?

Action of Quinine upon the Nervous System.—Herr Heubach, from experiences made in Professor Binz's Pharmacological Institution at Bonn, in which the slightly alkaline amorphous muriate of quinine as injected in doses of about a twenty-fifth to one fifth of a grain, arrived at the following conclusions: 1. With *small* doses the reflex excitability of the nervous system is not lowered but exalted. The animals (frogs) exhibited distinct phenomena of intoxication, but lived, and completely recovered from its influence in twenty-four hours. 2. With *large* doses the reflex excitability is in the first instance exalted, but subsequently diminished, the depression, however, being due to paralysis of the heart. Kölliker long ago called attention to the fact that paralysis of the heart abolishes reflex excitability, and Heubach has himself demonstrated the fact that, after the application of a ligature to the aorta, reflex excitability rapidly disappears. Hitzig has also shown in his just published essay of the Brain, that a due supply of blood is absolutely requisite for the conservation of the excitability of the central organs. 3. *Very large* doses not only affect the respiration and the activity of the heart, but quickly abolish all indication of vital activity, and consequently also of reflex excitability. The cause of death when large doses of quinine have been given is not, as generally supposed, direct poisoning of the heart, but primarily paralysis of the respiratory acts, and the heart is subsequently affected.—*London Lancet.*

MEDICAL NEWS.

'Nulla dies sine linea."

A further report, received through the India Office, relative to the treatment of leprosy by gurjun oil in the Andaman Islands, was read. It contains additional facts in testimony of the efficacy of this mode of treatment. It was ordered to be entered on the minutes for purposes of reference.——Sir Wm. Gull urged that no one should be compelled to give certificates of death gratuitously, and he was supported by Dr. Stewart and others, and the President was requested by the College to represent to the Registrar-General that some honorarium should be given to medical practitioners for certificates of death. —*London Lancet.*——*The Contagious Diseases Acts.*—As a whole, the proportion in hospital from the cause per 1000 mean strength, on the average of the five years, at the stations not under the Acts, were rather more than double that of the stations under the Acts.—*London Lancet.*——*Honors to Canadian Physicians.*—Our Canadian medical contemporaries are advocating the bestowal of a knighthood, or even a higher honor, upon Dr. George W. Campbell, of Montreal, who has long held the highest position among the Profession in Canada, his name being widely known and respected throughout the entire dominion. He was appointed to the chair of Surgery in the McGill University as far back as 1834, and is looked upon as the father of surgery in Canada. He is the Dean of the Faculty of Medicine in that University, and has earned a reputation which has extended not only to the neighboring Republic, but to Britain and other parts of Europe. As the general press of Canada has likewise advocated this measure, we feel sure that the bestowal of any honor upon Dr. Campbell would be a popular act of the Government. Whilst advocating this ourselves, we would mention another physician who has earned a distinction of some sort for the high position he holds at the capital of the dominion of Canada—we allude to Dr.

James Alex. Grant, of Ottawa, M. P. for the county of Russell, whose claims for the K. C. M. G. we urged some years back. Dr. Grant was President of the Canadian Medical Association in 1872, and he has done more than probably any man in Canada to uphold the honor and dignity of the Profession, both by his speeches in the Canadian Parliament and his opposition out of doors to the incorporation of the various quacks who are striving to find a home in the Province of Ontario.—*London Lancet.*———We understand that a number of the late Dr. Anstie's original and suggestive contributions to the study of nervous disorders, alcoholism, and heredity, at present scattered in various journals, are being collected into a volume which Dr. Buzzard will edit, and Messrs. Macmillan publish.—*London Lancet.*

EDITORIAL.

"Nullius addictus jurare in verba magistri."—Hor.

Close of Volume Eighteen.—The next number of this Journal will mark the year which represents the end of the first decade of the work. For the one hundred and eighth time its editor has the pleasure and enjoys the privilege of a few friendly words of communication with its supporters. It is the close of the year; a period when each reader has closed his record for the past twelve months. With some, this record presents a hard year's struggle with adversity; with all the ills that make life hard; losses; ill health; unrequited labor; afflictions; the untold little trials that go to make up a life of discomfort and suffering. With others, the record seems to be written in letters of gold and sunshine. Prosperity has crowned each venture; personal happiness and professional advancement have made each month happier than the last.

The city physician has moved from his humble brick home to the stone-front residence on the fashionable avenue. The prosperous, judicious, and trusted physician of the country has added fields to his previous acres, and has made his home joyous and beautiful within.

Such is the varied testimony coming up from physicians throughout this broad and grand country. Will it be amiss for this Journal also to place on record its testimony and its experience?

Commencing nine years since with nothing, it has had to fight its way through good report and evil report; through long years of unparalleled national adversity, poverty, and misfortune. The statement made here is made advisedly; the Journal has had to fight its way throughout a long and arduous path of detraction and distrust; malevolence, ill-feeling, and abuse. But with the purpose, long declared, of endeavoring to speak the truth always, whether in editorial, criticism, or literary review, it is the happiness of its editor to place on record the fact, that the Medical Profession, to its honor be it spoken, has not only sustained the work fully, but that this support has annually increased; and in proportions surprising to every one; not only to the carpers, and trimmers, and policy men, but also to the great Body of the Profession who advocate the right and always sustain the truth, for the truth's sake.

At this time last year, the circulation of this Journal was about 1,700; its present issue is nearly 2,400. With this strong and increasing endorsement, the editor pledges increased efforts to make the Journal more worthy of the support so handsomely accorded to it. He asks indulgence for all his many editorial faults for the past year, and continued indulgence and support for the future.

Arrangements have been made to increase largely the value of the Journal. It is asked that the Profession in the future, as in the past, will give it a prompt and liberal support.

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